

3·2·1·Contact



Is Time Travel Possible?

Also Inside:

- By Dogsled to the North Pole
- Star Trek IV: A New Movie
- ENTER Computer Section

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General Excellence



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3-2-1 Contact (ISSN 0195-4105) is a publication of the Children's Television Workshop, published ten times during the year, monthly except for February and August. © 1986 Children's Television Workshop. All rights reserved. All contents owned by the Children's Television Workshop and may not be reprinted without permission. 3-2-1 Contact is a trademark and a service mark of the Children's Television Workshop. Printed in the U.S.A. Number 72, December 1986. Editorial offices: One Lincoln Plaza, New York, N.Y. 10023. Application to mail at second-class postage rates is pending at New York City and additional mailing offices. Send subscription orders to 3-2-1 Contact, P.O. Box 2903, Boulder, CO 80522. POSTMASTER: Send address changes to: 3-2-1 Contact, P.O. Box 2903, Boulder, CO 80522 (including label from cover of magazine). Subscriptions: 1 year U.S.A. \$11.95, Canada and other countries add \$5. Bulk copy rates to schools and other institutions available on request.



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Cover Photo Courtesy of Paramount Pictures.



PHOTO COURTESY OF BROOKFIELD ZOO

We Fish You a Merry Christmas

What do you give a walrus for Christmas? Olga, a walrus at the Brookfield Zoo, near Chicago, likes fish. She'll get plenty at her annual Christmas party, set for Friday, December 12th.

Zookeepers trim Olga's tree with mackerel. They also display the cards her friends send in. If you'd like to wish a walrus a happy holiday, write:

Olga the Walrus
Brookfield Zoo
Brookfield, IL 60513.

Rubik's Back

If you're one of the whiz kids who solved Rubik's Cube, watch out! Erno Rubik, who invented the cube to help teach math, has come up with a new challenge.

In Rubik's Magic, you try to arrange eight hinged squares into a pattern. Sounds easy? No way. Cube-solvers had to avoid 43,252,003,274,489,855,999 dead ends. Magic promises plenty more.

NATIONAL AUDUBON SOCIETY



Rare Bird

From deep in a forest on the island of Cuba comes news to make bird-watchers jump for joy. Scientists have sighted two ivory-billed woodpeckers—birds that they feared were gone for good.

About 150 years ago, the call of the ivory-bill was common in the southern United States. (It sounds like a toy trumpet.)

But the thick old forests where these birds lived are mostly gone now. Ivory-bills haven't been seen for years. Since the 1940's, scientists have worried that they might have died out.

Now there's hope. Since ivory-bills have been seen in Cuba, some scientists believe there might still be a few somewhere in the U.S.

Meanwhile, Cuba's government has decided to protect the forest where the birds were seen. With a little luck, they'll breed—and then these birds won't be so rare!



ILLUSTRATION BY ILLINOIS MORRISSEY

Making Moon Rock

One day, there's going to be a permanent base on the moon. But what will it be built from? Building materials are heavy and hard to ship from Earth.

The moon base just might be made of—moon! Experts working with NASA, the U.S. space agency, have discovered most of the makings of concrete in moon rocks. They've created the galaxy's first lunar concrete.

The concrete-makers started with lunar soil that astronauts brought from the moon 14 years ago. They mixed in water and cement from Earth. (Moon-base builders could concoct water and cement on the moon's surface.)

The moon mix hardened into concrete. And it wasn't just strong enough to build with—it was twice as strong as the concrete most builders use on Earth.

A Real Heal

Most of the time, when a kid breaks an arm or a leg, it heals in a couple of months. But when a bone doesn't heal properly, doctors usually have to operate.

Now there's an invention that helps heal troublesome bones the most amazing way—by

"bathing" them in electricity!

It works like this: A weak electric current runs along a wire coil that lies against the broken arm or leg. That surrounds the broken bone with a field of electricity.

Scientists don't know exactly why, but electricity helps the bone heal. And it's painless. E.B.I. Medical Systems, maker of the new device, says some people using it actually had trouble believing it was working—until their broken bones healed!



ILLUSTRATION BY BA-BA-BA-GUY

Ho, Ho, Ho—Ah-choo!

Who has a red nose at Christmas time? Santa Claus for one. Rudolph the reindeer, too. And thousands of people who are allergic to Christmas trees.

Soon after some people set up their trees, their noses and eyes turn red, runny and itchy. The problem is pollen—a fine powder made by male plants. Pollen makes allergic people sneeze.

Most trees release pollen in the spring. But mountain cedars (also called junipers) release it in winter. They're common Christmas trees in some parts of the U.S.

What can you do if your tree starts you sniffing? Easy enough, says Dr. Timothy Sullivan, who's working to cure the mountain cedar allergy: "The solution is getting the tree out the back door."

Going Ape

This winter, movie fans can go ape watching the biggest primate of all. King Kong has returned.

In the science-fiction spectacular *King Kong Lives*, the gargantuan gorilla takes on the U.S. Army—and takes a wife, too. Then 200-pound "Baby Kong" joins the happy pair. It all sounds like more fun than a barrel of monkeys.



PHOTO © DOLBY AND FORBMAN

Whale of a Game

It isn't easy being a whale. Polluted waters can make you sick. Hunters may harpoon you. It's all in a new board game called "The Whale Game."

Members of Greenpeace, a group that works to protect the environment, designed it so people could have fun learning about whales and their watery world.

The game is available from many science museums and:

Greenpeace
co Winterland Productions
Post Office Box 77505
San Francisco, CA 94107



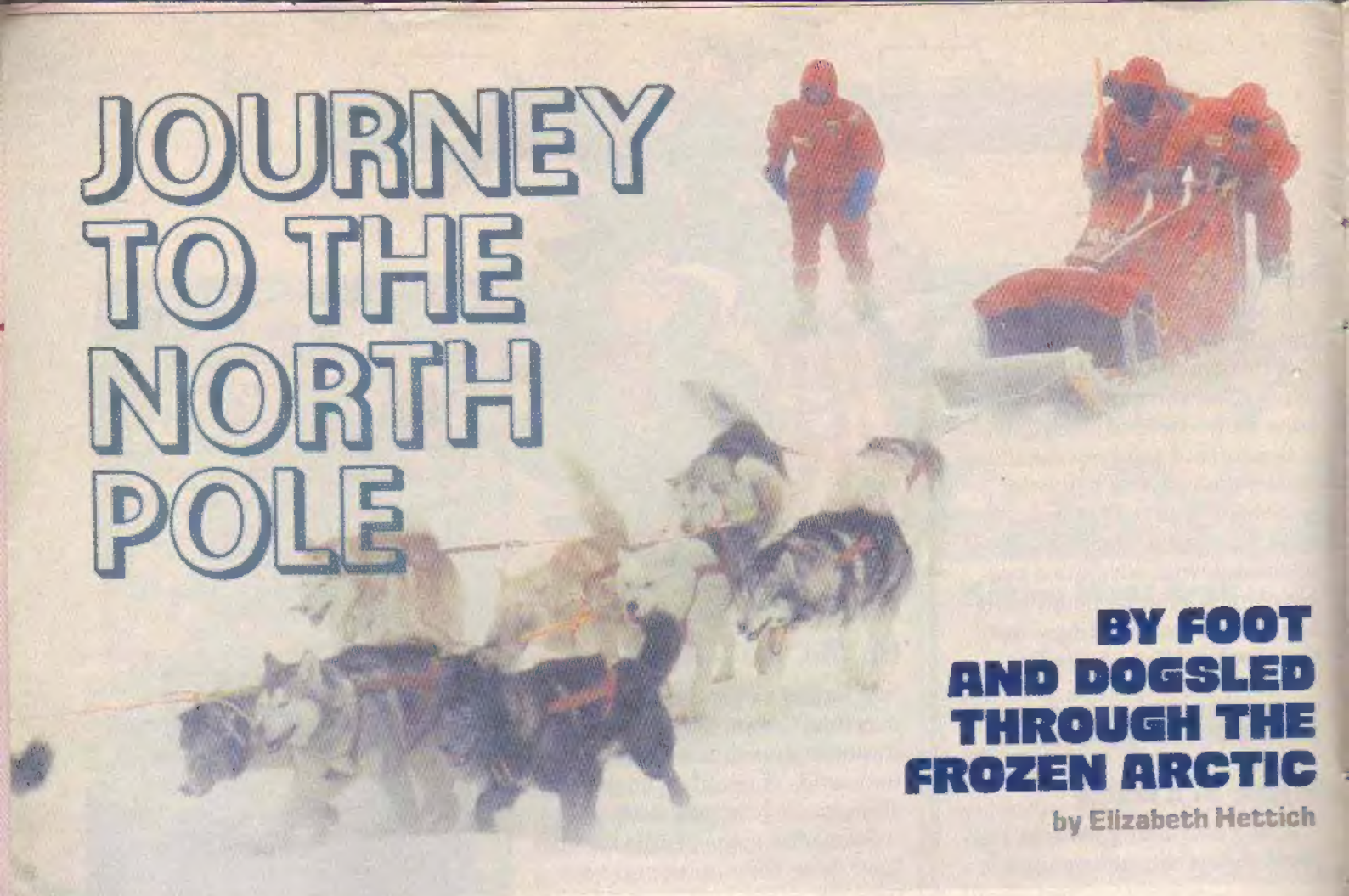
ILLUSTRATION BY JENNIFER SNOOP

So What's New?

You tell us and you'll get a nifty CONTACT T-shirt—if we print your story. Send us any science stories from the news that have to do with the future. (Be sure to tell us where you heard the story.)

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New York, NY 10023

JOURNEY TO THE NORTH POLE



BY FOOT AND DOGSLED THROUGH THE FROZEN ARCTIC

by Elizabeth Hettich

The team had been traveling for eight weeks—brave people and hearty sled dogs cutting through a maze of Arctic ice. Miles of bluish whiteness stretched as far as the eye could see. All was silent, save for the occasional boom of huge blocks of ice cracking and crashing.

Had the six explorers finally reached the North Pole? They couldn't be sure. There were no signs or landmarks to tell them. There's not even any land at the North Pole. It's just ice.

As they looked across the endless stretch of ice, the explorers asked themselves the same question: Had they made it?

The Ultimate Challenge

For the members of the Steger International Polar Expedition, reaching the Pole was the end of a journey that began on March 8, 1986. That's when they left Canada's Ellesmere Island, the northernmost point of land in North America.

As the first glimmers of spring spread across the Arctic, the team set out on a trek that would take them through minus 73-degree (Fahrenheit) temperatures, blinding snowstorms, and weeks

of unending sunlight. (As the Earth orbits the sun, the North Pole faces sunward all spring and summer—and it never gets dark!)

Why did they do it?

"The North Pole is the top of the world!" expedition co-leader Paul Schurke told CONTACT. "It represents the ultimate challenge for people interested in winter camping."

Before the Steger Expedition, no one had ever proved without a doubt that they had reached the North Pole on foot. Others have visited the Pole with snowmobiles, airplanes and submarines. In 1909, Admiral Robert E. Peary claimed to have reached the Pole on foot, but some experts now doubt he really did.

Paul and co-leader Will Steger started planning their trip in 1983. They knew their lives would depend on their choices.

"We had to research the best routes, the best equipment, the best dogs, sleds, food and clothes," Paul told CONTACT.

They rounded up six of the best winter campers they knew. And they found 50 of the

world's most energetic sled dogs. Most were Eskimo huskies, but some were a special breed—half husky and half wolf—that Will raised himself.

"My favorite dog was Sam," said Anne Bancroft, another team member. "He was found on a training trip. He was hanging around eating meat scraps. He turned out to be a real lover—he likes to lean on you and hug a lot. Other dogs kind of picked on him but he was my favorite."

Arctic Training Camp

Training for the trip began in September 1985. "To train," Paul said, "we drove five dog teams that pulled sleds loaded with 1,000 pounds of gravel." During this time, special equipment was manufactured, including extra-puffy sleeping bags and heavy-duty tents. And there was strong, lightweight clothing that would let the explorers move freely and easily.

"We actually didn't wear that much," Anne told CONTACT. "We wore a pair of long underwear, then a 'polar' union suit with a drop seat.

Anne Bancroft (center) and other members of the group at the pole.

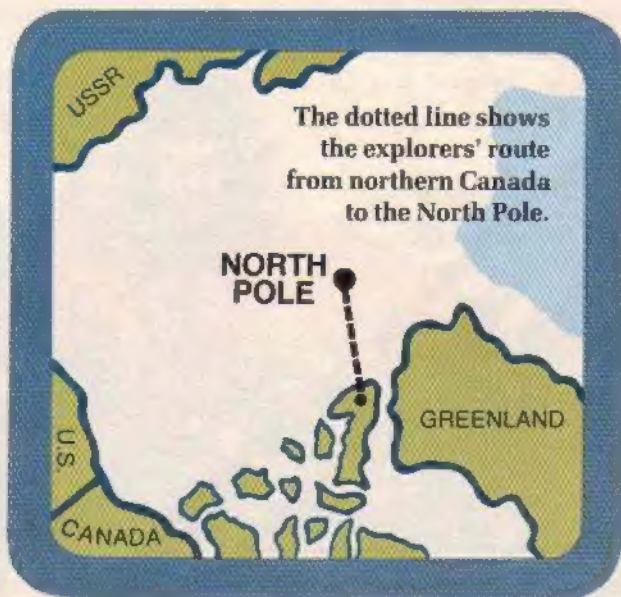


PHOTO © WILLY PHOTO BANK/JIM GASPARI



PHOTO © WILL STEIGER

The expedition had to fight its way over 20-foot ridges.



The dotted line shows the explorers' route from northern Canada to the North Pole.

Over the polar suit we wore a windbreaker."

Once the travelers pulled their special clothes on at the beginning of the trip, they never took them off. For 55 days, there wasn't even a way to take a bath!

"The big luxury for me was when, three-fourths of the way through the trip, I washed my face with a cup of hot water," Anne said. ➔

Like Pushing A Truck

Once they started, they would hike about 15 miles each day for eight weeks. A typical day started with a quick breakfast of oatmeal. Then down came the two four-person tents. The dogs would be harnessed, and the team would set off.

They hiked about 10 hours a day—and, some days, as long as 18 hours. “We couldn’t even stop for lunch because the cold would get through our clothing,” Paul recalled. “Instead, we nibbled on high-energy carob bars.”

The ice in the Arctic isn’t flat. The team had to move over pressure ridges—icy mounds formed when huge sheets of ice crash and push upward. Some of the ridges were 60 feet tall. “It was like pushing a truck out of a snowdrift—10 hours a day!” Paul said.

Dogs and humans all ate the same dinner every day: noodles and cheese mixed with two pounds of pemmican—a mixture of raw, dried meat and fat invented centuries ago by Native Americans.

Every team member brought along some of their favorite foods—about two ounces’ worth a



PHOTOS THIS PAGE: © BOB FERRELL

Will Steger and dog team
on a training mission.
Above: Thick fur protected
the dogs from the freezing cold.

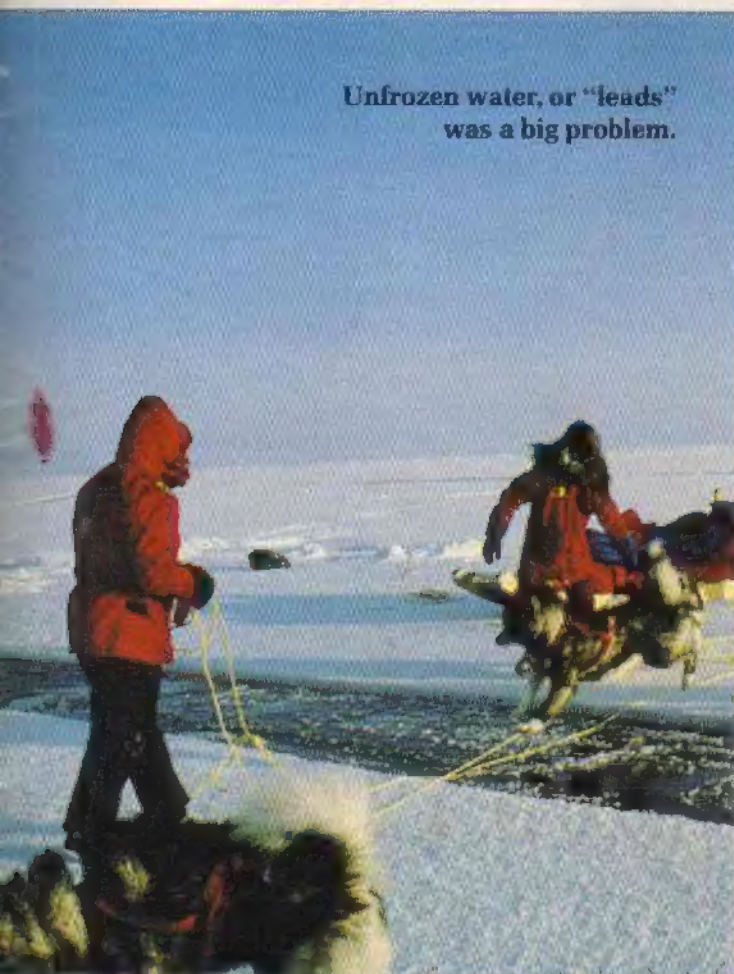


day. Some of their choices were pretty unusual. "For me, it was dried caribou and raisins," said Paul. "For Will, it was dried seal meat with lemon, and for Anne, it was brown sugar."

Simply handling the sleds could be dangerous. At the beginning, each sled weighed 1,350 pounds. "They would get out of hand very easily," said Anne. "You're pushing the sled and it's bouncing around like a pinball." A sled bumped one team member, Bob McKerrow, and broke several of his ribs. He had to be flown home.

Then there were the leads—pools of water between patches of cracked, unstable ice. Some were just a few feet long. Some stretched for miles. The team had to find a way across. And they had to beware of weak ice that could break open without warning.

"Once I was scouting for a place to cross when the ledge crumbled and I fell in up to my waist," said Anne. Luckily, it was a "warm" day—only 30 degrees below zero!



Unfrozen water, or "leads" was a big problem.

PHOTO © WILL STEGER



PHOTO © BOB FISH

Paul Schurke uses a sextant.

Are We There?

But the biggest problem of all came at the very end of the journey. How would they find the North Pole? Not only is there no sign, but the Arctic ice never stops moving. The spot of ice above the Pole today may be 20 miles away tomorrow.

There was only one way for the expedition members to be sure—by using a sextant. Sextants measure the distance of the sun from the horizon.

"At home, you see the sun rise and set," explained Anne. "But at the North Pole, it doesn't dip at all. It goes around in a complete circle at the same height."

On May 1, 1986, the explorers took sextant readings once an hour for 24 hours. The sun never dipped. They knew they were at the Pole!

"That's when we got emotional," remembers Anne. "There were tears of relief and excitement. We kind of went crazy and started to whoop it up."

"All we had left," Paul told CONTACT, "were four pounds of dried oats and lard."

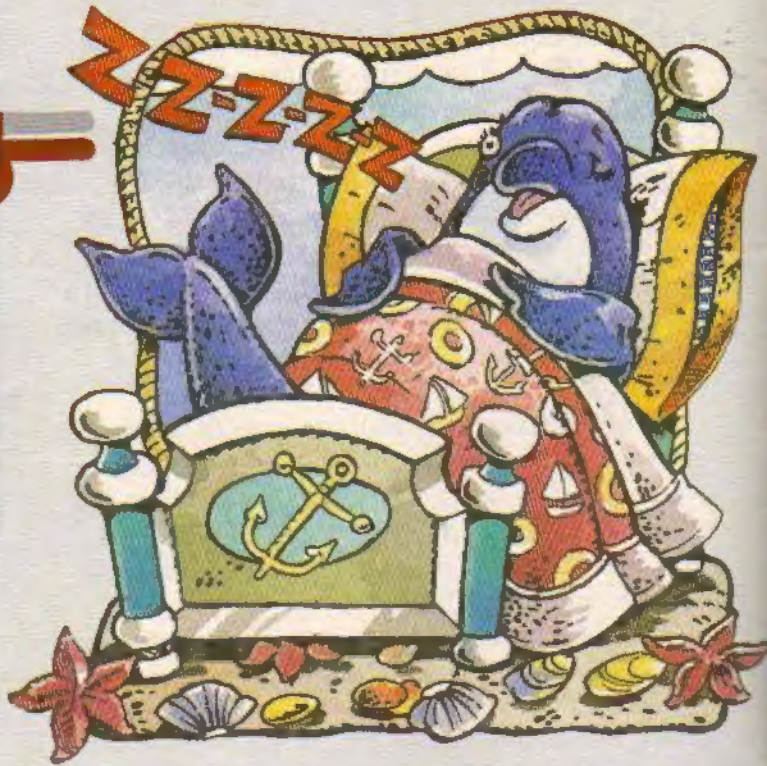
Soon a plane arrived to take the tired people and animals home. The Steger Expedition had proven that people could reach the North Pole without the help of machines. After eight weeks of pemmican and oatmeal, how did the brave explorers celebrate? With a feast of chocolate-chip cookies, ham sandwiches, milk and two bottles of champagne. ☼☼☼

Factoids

It's against the law
to play marbles for keeps
in Ashland, Wisconsin.



The same side of the
moon always
faces Earth.

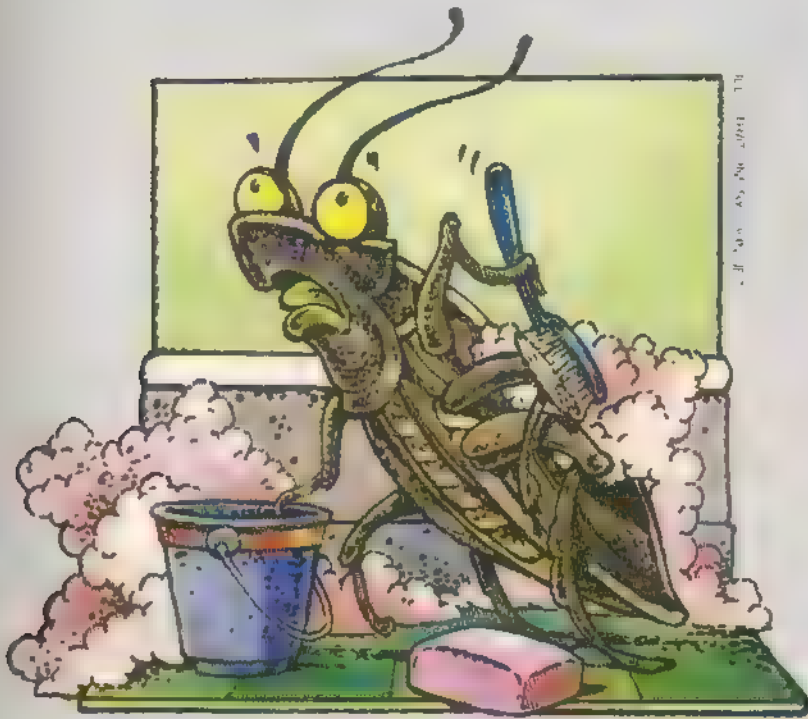


A dolphin sleeps with one eye open.

Blue whales can go
without food for six months.



If a cockroach touches
a human being, it runs off to
safety and cleans itself.



About 22 per cent of
last year's U.S. potato crop
was french fried.



The ancient Egyptians thought
children could see
into the future.



Time Travel

by
RICHIE

How would you like to see a real live dinosaur? Talk to Abraham Lincoln? Travel to the year 2086? It sounds like fun, but do you think that people can really travel through time? In the movie, *Star Trek IV*, Captain Kirk and

**IT CAN REALLY
HAPPEN!**

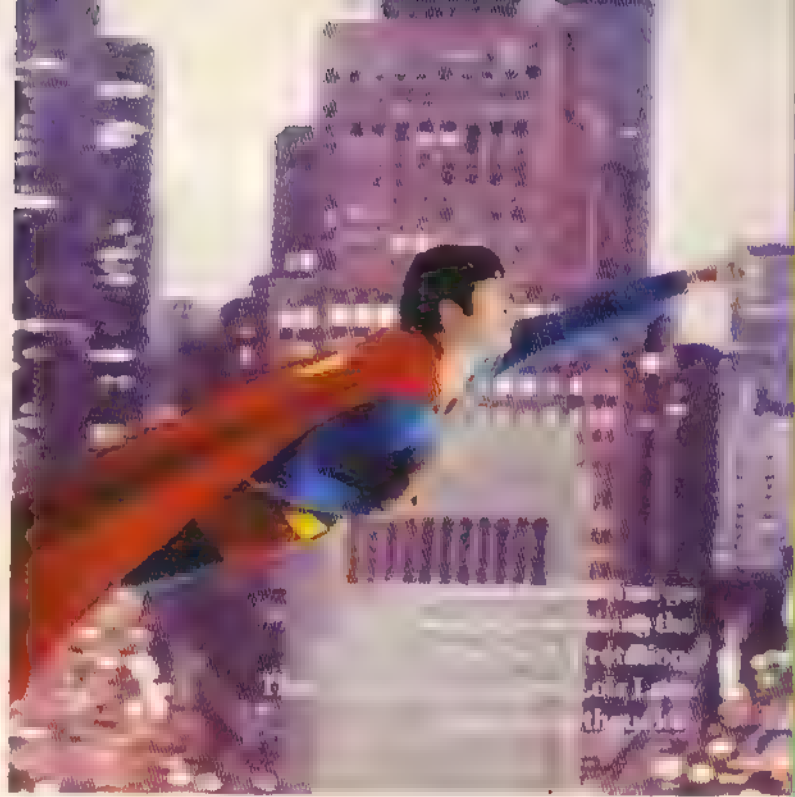


Into the Future

"We know that time travel is possible, but only one way, into the future," says Dr. Jearl Walker, who teaches physics at Cleveland State University. And, he says, you don't need a fancy time machine—just a rocket ship and something called a black hole.

What is a black hole? It is a star that has collapsed. Stars, like our own sun, burn for millions of years. But sooner or later they run out of fuel. Then they may collapse. Some very large stars collapse into objects called black holes.

The gravity of a black hole is so strong that no matter can escape from it. (Matter is the name for all the substance in the universe. Anything that takes up space is matter.) In fact, not even light can escape from the gravity of a black hole. That is why they are called black holes—because no light comes from them.



Dr. Walker told CONTACT how a black hole could be used for time travel: "If we could send an astronaut to a black hole and put him into orbit around it, it would be like putting him into a time machine. When he entered the high gravity around the black hole, his rate of time would slow compared to someone on Earth. Of course, he couldn't get too close, or he wouldn't be able to escape.

"If he orbited the black hole for a year and then came back to Earth, the Earth would be much, much older, maybe thousands of years older. But only a year would have passed for the astronaut."

Scientists are certain that this kind of time travel is possible. The only problems are finding a black hole, building a rocket that can go there and getting an astronaut to volunteer for the job.

Faster Than A Speeding Bullet

Another way of traveling into the future would be to travel at very high speeds. You would have to build a spaceship that could go close to the speed of light—186,000 miles per second! (Scientists don't think it's possible to go faster than the speed of light.)

If you built a spaceship that fast and went zooming off into space, time for you would slow down. On your spaceship it might seem that only a few months had gone by, but when you got back to Earth, hundreds or thousands of years might have passed. ➡



through time
and the know
unknown un



In "Back to the Future"
Michael J. Fox helped his
parents meet and fall in love.

This may all sound crazy, but there's actual proof. Satellites in orbit around the Earth are traveling pretty fast (although nowhere near 186,000 miles per second). And when scientists put very sensitive clocks on board satellites, the clocks slow down! Even traveling in a jet will slow down time compared to standing on the Earth. Of course, the amount time slows can only be measured in millionths of a second, but it does slow down.

What about traveling back in time? "As far as we know, that's not possible," says Dr. Walker. "At least not for us."

Dr. Walker says there are some kinds of matter that seem to be traveling backwards in time.

These are bits of matter that are even smaller than an atom. However, this is something scientists don't really understand yet. And as of now, no scientist believes it is possible for humans to travel back in time, at least not in real life.

Who Is Dr. Who?

In science fiction, however, people are always time traveling. Probably the most famous book about time travel, and one of the first ever written, is *The Time Machine*, by H.G. Wells.

"H.G. Wells' idea of a time machine was really kind of silly," says Frederick Pohl, a writer of many science fiction novels and stories. "It was kind of like a bicycle made of crystals. *The Time Machine* is still a good book though."



Right: This is one artist's idea of what a black hole might look like.



Below: In "Time Bandits," a group of little people go back in time to visit Robin Hood and his Merry Men.



Nowadays, writers like Frederick Pohl try to base their novels on a more scientific explanation of time travel. For example, in his series of books called the *Heechee Saga*, some of Pohl's characters get trapped in orbit around a black hole and time slows down for them.

But not all fictional time travel is so scientific. Probably the greatest time traveler of them all is Dr. Who, a character on a British television show (which is sometimes shown in the United States). There are also Dr. Who novels and comic books sold around the world. Dr. Who travels backwards and forwards in time, fighting evil.

Why are so many books and movies written about time travel? Even though time travel isn't possible yet, having characters that travel

through time lets us dream about what the future might be like.

"It's like space travel before we had rockets," says author Pohl. "The best way to talk about changes in the future is to have someone from the present go and see it. They can look at the future through eyes that see it the way we do."

Can You Change The Past?

There have been lots of other fictional time travelers. Some are scientific and some are just plain silly. Even Rip Van Winkle was a kind of time traveler, since he fell asleep and woke up 20 years in the future.

Frederick Pohl and Dr. Walker both say that one aspect of time travel fascinates them: If you could travel to the past, would changing the past change the present? This is something Captain Kirk has to worry about when he visits present-day Earth.

What do you think? Could you change the present by changing the past? What would happen if you traveled back in time and met a younger version of yourself? Since time travel to the past isn't possible, we'll never find out. But it's fun to think about. **◀PA▶**

Some Time Travel Books for You

The Time Machine by H.G. Wells

A Connecticut Yankee in King Arthur's Court by Mark Twain

A Wrinkle in Time by Madeleine L'Engle

The Forever War by Joe Haldeman



Star Trek IV

by
B.V. Shaw

TIME TRAVEL IN A NEW MOVIE

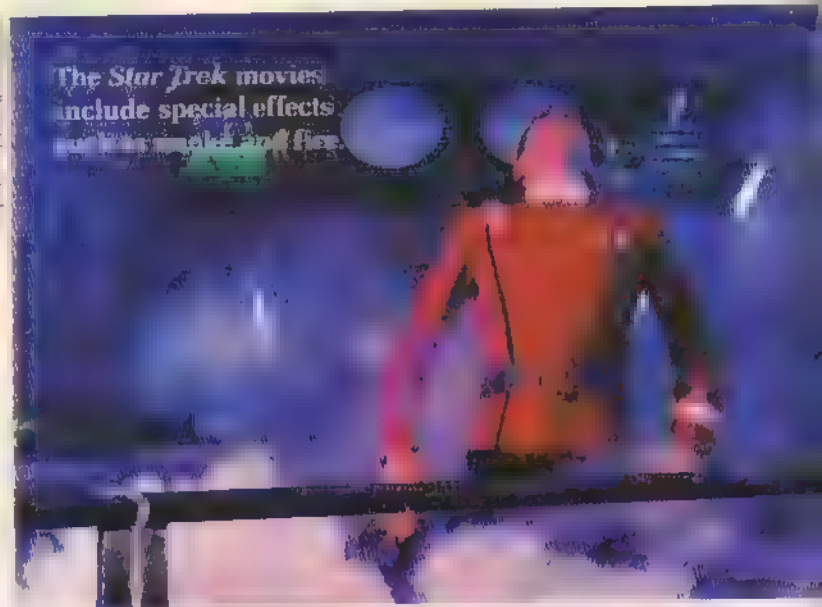
What happens when a group of space travelers from the 23rd Century ventures back to the 1980's? Get ready, because it's going to happen this December in your local movie theater. That's where and when Admiral James T. Kirk's crew reports for duty in *Star Trek IV: The Voyage Home*. If you're a *Star Trek* fan, you know the events will be anything but boring.

In their latest adventure, Admiral Kirk, Mr. Spock, Dr. McCoy, Scotty, Lieutenant Uhura, Chekov and Sulu travel back in time to 1986. If that sounds like no big deal, imagine what it would be like to take a ride back to the 1600's. The purpose of the *Star Trek* mission: Change events in our time to prevent the destruction of Earth three centuries later—in their time.

More details on the plot of *Star Trek IV* are being held top-secret by the movie's producers. But we do know that Admiral Kirk orders his crew back to San Francisco, California. According to the script, that's the place where the Federation of Planets (a sort of interplanetary United Nations) was first assembled. When they arrive, the futuristic astronauts are in for a large

dose of culture shock.

This is not the first time the crew of the U.S.S. *Enterprise* has traveled through time. In one episode of the 1970's TV series, Kirk and Spock crossed over to 1930's Earth. In another, they wound up in the 1970's.



Meet Mr. Chekov

Special effects for television and movies have come a long way since the TV series was made. Back then, a strange being was usually played by a person in a lizard suit. Today special-effects experts use computers and robots to show us aliens and spacecraft.

To find out about these changes, CONTACT talked to Walter Koenig, the man who plays Russian navigator Pavel Chekov

Walter remembers when "special effects" was nothing more than good acting by the cast.

"Whenever the *Enterprise* was struck by enemy missiles, or an asteroid shower," he says, "the cameraman would shake the camera and we'd all fall out of our seats."

Nowadays, in the movie versions of *Star Trek*, the actors still fall out of their seats, but they have a little help. The film crew can mount the set on a special device that rocks the actors out of their positions.

Below: Mr. Chekov meets his enemies in *Star Trek II: The Wrath of Khan*.



Since today's special effects are so much more realistic, Walter says, the actors sometimes feel that their adventures are real. In making the new movie, he says, "When they filmed our craft 'landing' in San Francisco Bay, I felt like it was really happening!"

Time Traveling Trekkies

"Mr. Chekov" really enjoyed the time traveling theme of this latest *Star Trek* movie. In *Star Trek IV*, the voyage of the crew back to their roots is accomplished by orbiting the sun faster than the speed of light (186,000 miles per second).

"I don't know if it could happen in real life," Walter says. "But the idea of traveling faster than the speed of light and ending up in another time is exciting."

Meanwhile, a lot of real time has passed since Walter first played Chekov on the television series. Back then, he says, no one dreamed *Star Trek* would be so successful. When he signed on, it was only supposed to be for one show. But one show turned into a season and then two seasons and now four blockbuster movies.

Walter believes that all this space exploration in film gives him a special appreciation for the real space program.

"I think I'd like to spend time out in space. There's so much out there that we don't know about. I'd like to be a part of the excitement of discovering new worlds."

Walter may never get the chance to blast off to another solar system. But, for him, *Star Trek* has brought space a little closer to home. ☺

Kooler News



Kooler Moments in History

You know the old saying: If at first you don't succeed, try, try again. Abe Lincoln did. 1832 was a bad year for Honest Abe. He lost his job and he lost an election for the Illinois legislature.

The next year, 1833, his business failed. After five quiet years, he decided to run for Congress. He lost. That was 1838. In 1849 he was rejected for the Land Office. In 1854 and once again in 1858, Lincoln decided to run for the U.S. Senate. He lost both times. In 1856 he didn't get to be vice-president. Five years later, in 1861, he was elected President of the United States. Way to go, Honest Abe!

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I didn't Know that!

The world's largest Christmas wreath weighed 765 pounds and stood 19½ feet high. It was made in Oshkosh, Wisconsin.

Kooler Kids

Wolfgang Amadeus Mozart had more than just a really weird name. He was born in 1756. His father took him on a tour of Europe when he was seven. He amazed all the kings and queens of Europe with the way he played music. He wrote his first symphony in 1764. He was only eight years old.



If you're a Kooler Kid or know of one, send us your photos and letters.

TOUR KID

Ask Dr. Know

Dear Dr. Know,

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By Hand

Dear Hand,

Most archaeologists I know use computers. They need to know how to type. I think your father's right this time. Happy digging!

Mail your Kooler questions to Dr. Know.



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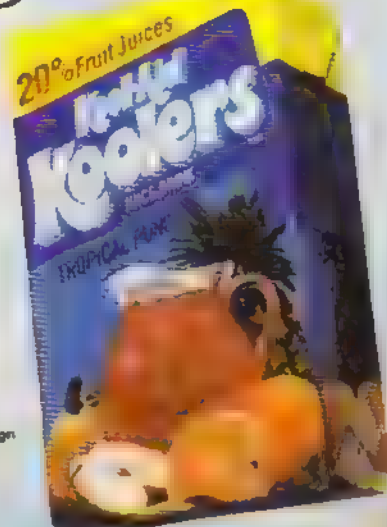
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2. All entries will be judged on the basis of humor and originality. Contest is open to children 7 years of age and under as of date of entry. Judging will be conducted by a panel of this magazine's editors. Winners will be notified by mail no later than March 3, 1987. Winners must sign and return proof of eligibility within 30 days of notification prior to receipt of prize. Any prize or notification of prize awarded to a minor will be awarded to an alternate winner. Each alternate winner will be notified by mail. Each entry becomes the property of General Foods Corporation. All copyrights remain with their owners. All photographs and/or illustrations for promotion, publicity or advertising purposes without further compensation. Limit one prize to a family or household. Winners are responsible for all taxes. State and local laws. All prizes will be awarded.

3. No substitution or transfer of prizes. Prizes are not redeemable for cash. Employees and family members of General Foods Corporation, children's television workshop, their relatives and their advertising and promotional agencies are not eligible. This offer is void in the State of New York and wherever prohibited or restricted by law.

4. For a list of winners, send a self-addressed, stamped envelope to: Editor, Company Magazine, 1000 Madison Avenue, New York, New York 10017.

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Kankakee, IL 60902

Any Questions?

by Marc Derman

Why does your temperature rise when you're sick?

There's a section of your brain that controls your temperature, like the thermostat in your house. The brain does this by adjusting the flow of blood through your body. Sending more blood to your skin cools you off, because the warmth of your blood is released through your skin. Sending more blood through your inner parts helps to warm you.

When you're sick, your body produces a chemical that fools your brain into thinking you're too cold. So your brain causes the blood vessels in your skin to get narrower. Then less blood reaches your skin, you can't release heat, and your temperature rises.

Sometimes after you've had a fever you sweat. Sweating is your body's way of cooling itself.

Even though a high temperature makes you feel uncomfortable, fever is one of your body's signals that it's working—just the way it should.

Question sent by Glenn Caviness, Carthage, NC



ILLUSTRATION BY BOB DE LLOYD

How does a weather forecaster predict the weather?

Forecasters use lots of different tools to predict the weather. They may use satellite photos to look at weather in other parts of the world. Or they may call up weather people in other cities. They use weather balloons to gather information about the temperature, humidity and air pressure at different levels of the atmosphere. And they use radar to locate nearby storms.

After weather forecasters have gathered all this information, they put it together, sometimes with the help of a computer. Then they try to figure out what the weather will be. Weather forecasters now claim they're correct about 80 per cent of the time.

But there are less scientific methods some people use to figure out whether it will be warm or cold, wet or dry. For example, folks will tell you they can predict the weather by looking at certain kinds of caterpillars. Does it work? No one knows for sure.

Question sent in by Bethany Lyons, Somerset, MA



Do you have a question that no one seems able to answer? Why not ask us? Send your question, along with your name, address, and age, to:

Any Questions?
3-2-1 CONTACT
P.O. Box 599
Ridgefield, NJ 07657

Why is there no channel one on TV?

Well, the fact is, there is a channel one, but you can't use it. The U.S. government set aside the channel just below channel two for two-way radio communications.

Part of the channel is used for two-way radios in cars and trucks. Another part of that channel is used for amateur radio. People wishing to broadcast on it, such as ham radio operators and taxi companies, must apply for a license from the government.

Most TVs come with 82 channels. Channels two through 13 are called VHF for Very High Frequency. Channels 14 through 83 are called UHF or Ultra High Frequency. With cable television and satellite dishes, more and more homes can get a different program on every one of those channels. With all that TV, most people don't miss channel one.

Question sent in by Mark Fusani, Buffalo, NY



Why does a skunk smell bad?

You're driving on a country road. Something black and white and furry skitters into the bushes. then...P.U.!

You've just had another close encounter with a skunk. Skunks don't always smell bad. They just give off that aroma when they're scared or threatened. Their scent saves them from being dinner for other, bigger animals.

Skunks spray scent as a liquid, from glands at the bases of their tails. A gland is part of an animal's body that produces a substance that helps that animal survive. People have glands too. For instance, glands all over your body produce sweat when you're hot. Luckily, your sweat isn't as smelly as the scent of a skunk.

You may have seen a skunk and said, "I wouldn't touch it with a 10-foot-pole." That's a smart idea because a skunk can spray its scent up to 10 feet. To be absolutely safe from skunks you'd have to go far. Skunks live all over North and South America, but are unknown on other continents.

Question sent in by LaShundra Carter, Columbus, MS



Mail

Here are some of our favorite aliens from the Planet Uranus contest (March 1986 issue).



Jacob Kasell
Minnetonka, Minnesota



Moses J. Domingo
Chicago, Illinois



Adam Michael Winner
Emmaus, Pennsylvania



Derek Vowles
Gardnerville, Nevada



Andrea Zenone
Wasilla, Arkansas



Stephanie Chipps
Morgantown, West Virginia



In winter, reindeer scrape snow from the ground to uncover food. They eat tiny plants, called lichens, which grow in cold, icy ground.

LIFE AT A LOOK AT REAL THE TOP REINDEER

by Phillip Fragasso

If someone asked you who Dasher and Dancer and Prancer and Blitzen were, you would know right away. They are fairy tale names for a real-life animal—the reindeer. But what if someone wanted to know more about real-life reindeer. Would you know what to say?

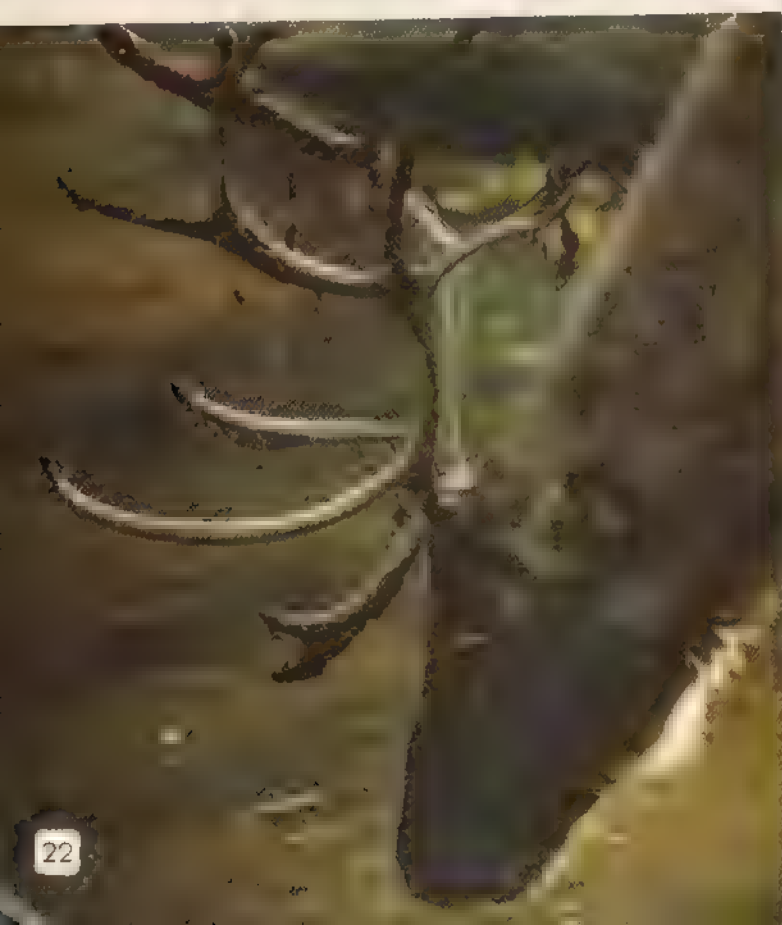
Real reindeer don't have red noses. They can't fly as in the Christmas story. But they do live near the North Pole and sometimes pull sleighs. And that's just a little bit of what there is to know about these beautiful, powerful animals.

Reindeer are found in the cold, snowy parts of the world—places like Norway and Finland in Europe, and Russia's freezing Siberia. In North America, they live in Alaska and Canada. Some can even be seen as far south as Montana and Maine. ➔



Left: The reindeer of Europe and Asia are smaller than the North American caribou. They are about 3½ feet (1.2 m) high and weigh about 300 pounds (140 kg).

Below: Reindeer are not always peaceful. They fight by knocking their heads together and locking antlers.



The North American reindeer is called the caribou (KAR-uh-boo). It is the largest of all reindeer. Some caribou grow to be five feet (1.5 m) high and weigh 400 pounds (182 kg). Caribou and other reindeer live in groups in the wild. A herd may have as few as 30 or as many as 200,000 reindeer. They spend most of their time traveling together, usually searching for food.

Reindeer don't hunt other animals. Instead they eat mushrooms, grasses, twigs and moss. In summer they find this food in grassy flat areas in the north. When fall and winter come, food is harder to find.

Left: A reindeer's antlers are covered with fur and can be over three feet (1 m) wide. They shed their old antlers each January and grow a new set during summer.

Reindeer migrate south to forests where food is not quite so scarce. In the springtime they return to the grassy plains.

Even though they live in freezing cold places, reindeer are able to stay warm. Covering their skin are two separate layers of hair. The bottom layer is a thick wooly coat of hair. The top layer is made of long, stiff hairs. These hairs are hollow and filled with air. They hold onto the heat from the reindeer's body. Thanks to this double protection, these animals stay toasty warm, even when the temperature is minus 50°F (-46°C).

Growing New Antlers

If you are ever lucky enough to see a reindeer,

the first things you will notice are its antlers. In every other kind of deer, only the males have antlers. But every reindeer, male or female, has them. Not only that. Reindeer grow a new set of bony antlers each year.

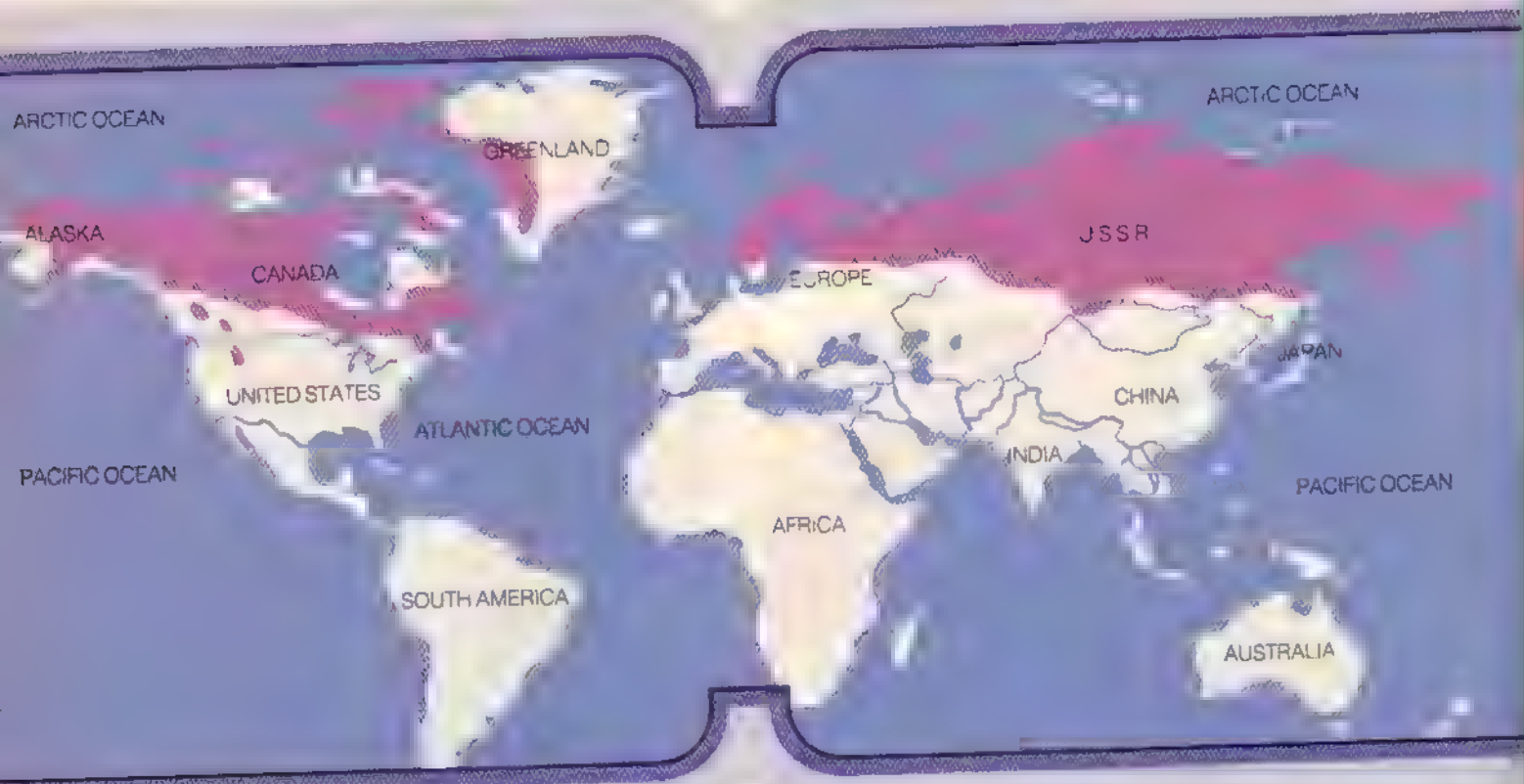
In the summer when they are a year or two old, reindeer grow their first small, soft antlers. They are attached to the animal's skull. In the fall, blood stops circulating to the antlers and they get harder. Around Christmas-time, the antlers drop off. This probably doesn't hurt the reindeer at all. During spring and summer the animal grows a new set of antlers. They are a little bigger and stronger than the year before. Then the cycle starts all over.

No Slipping or Sliding

Even though they carry those heavy antlers, reindeer move very well over rocky, icy land. Thanks to their specially made hooves, they get through all kinds of rough spots. The hooves have hard, sharp, thin edges. These edges help reindeer avoid slipping on dangerous cliffs. They also let them speed over slippery ice. The middle part of ➡

Below: In some Arctic areas reindeer are the best means of getting around. They can pull sleds at speeds up to 15 miles per hour (24 km/hr).





Above: The red areas on the map show the places where reindeer are usually found. In North America they are sometimes seen as far south as Montana and Maine.

the hoof is very soft. It is covered with fur, which makes it work like a snowshoe.

You wouldn't think these big animals could travel across water easily. But they can. When reindeer are on the move, they often have to swim across streams and rivers. That's when their hooves go to work. Each hoof spreads out like a paddle. That helps the reindeer swim across. At the same time, the air-filled hair on the reindeer's body acts like a life preserver and helps it float. Together, the hooves and the hairs make the reindeer an excellent swimmer.

Danger Warning!

Reindeer's worst enemies are wolves. To protect themselves, the reindeer herds have a natural warning system. Whenever a reindeer feels danger ahead, it points its tail straight up. The underside of the tail is white. When a member of the herd sees a white tail, it knows that means "danger ahead." Each reindeer then passes along the message by lifting up its tail, too.

Reindeer also can leave messages behind them, so others who come later can be warned. The reindeer squirts a strong-smelling liquid from between its toes onto the ground. Any reindeer that comes along will smell the liquid and know there may be danger nearby.

A Reindeer for a Pet?

Not all reindeer live in the wild. In Norway, Finland and Siberia, people raise herds of reindeer. These reindeer pull sleds. They also give milk, like cows do. Reindeer milk is very thick, though, and has to be watered down before people can drink it.

People who depend on reindeer tell many true stories about them. In Norway, one real-life reindeer is a national hero. Many years ago, urgent messages had to be sent to Norway's king. An army officer jumped into his reindeer-pulled sleigh and set off. They traveled across 800 miles (1333 km), through snow and wind. After two days, the reindeer got the soldier and his message to the king. The reindeer had saved the day!

ADVERTISEMENT

My Wish List



In the planet of Tenopia, you are surrounded by man-eating spiders and half-human crogocides. How will you escape? You decide in "Escape" from Tenopia. Books 1, 2, 3 and 4, by Edward Packard, creator of CHOOSE YOUR OWN ADVENTURE. From Bantam Books.



Cycle Products Company's Curb Cruiser™ Cycle Products' Curb Cruiser™ rips like a board, with handles and a brake for control and styling ease. Violate flatlands pound the pavement, the Curb Cruiser™ can handle almost any punishment. Available at major retailers everywhere.



Pick a pair of pretty pastel prints and make our holiday dreams come true. Like this glitter-dust top and zebra-print skinny pants from Eva Joia. They're the mix around separates at the top of our list.

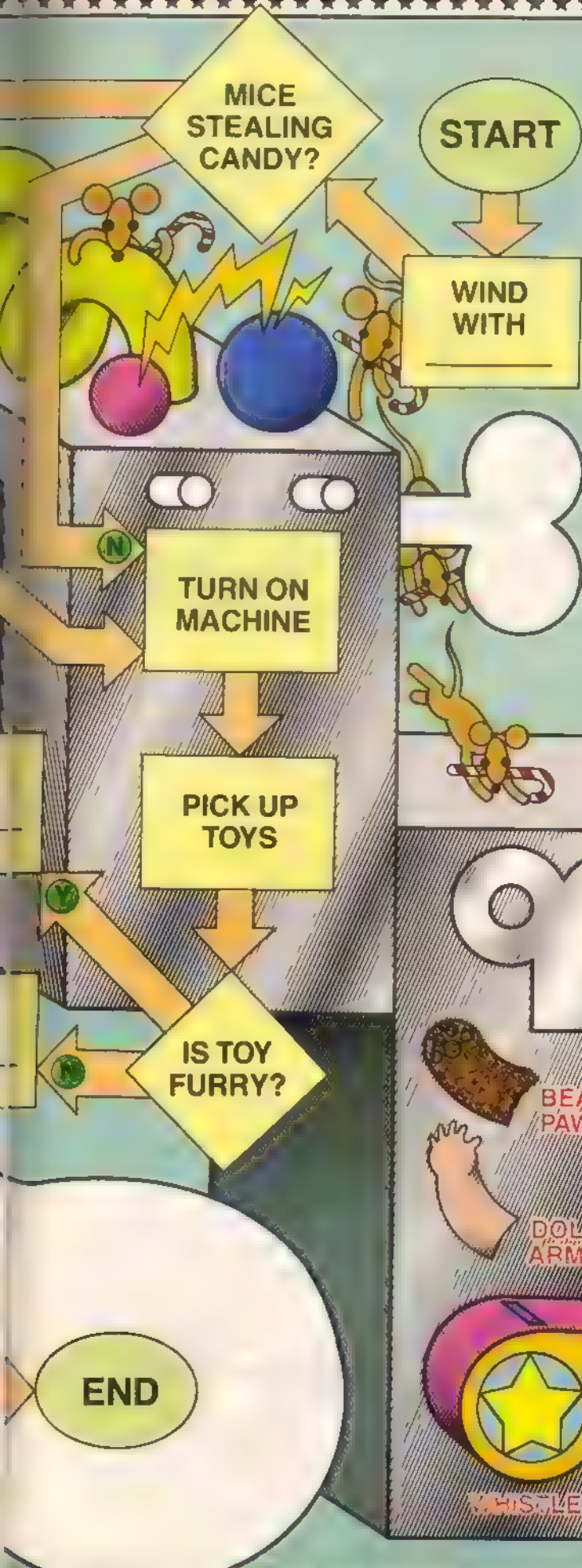


Ten incredible grow figures for \$4.00. These tiny figures grow to many times their original size when placed in water. Each set includes Dinosaurs, Robots and the Statue of Liberty, in an assortment of colors. Safe, non-toxic figures come with their own storage net. Age 3 years and up. Available From Pineapple Industries.

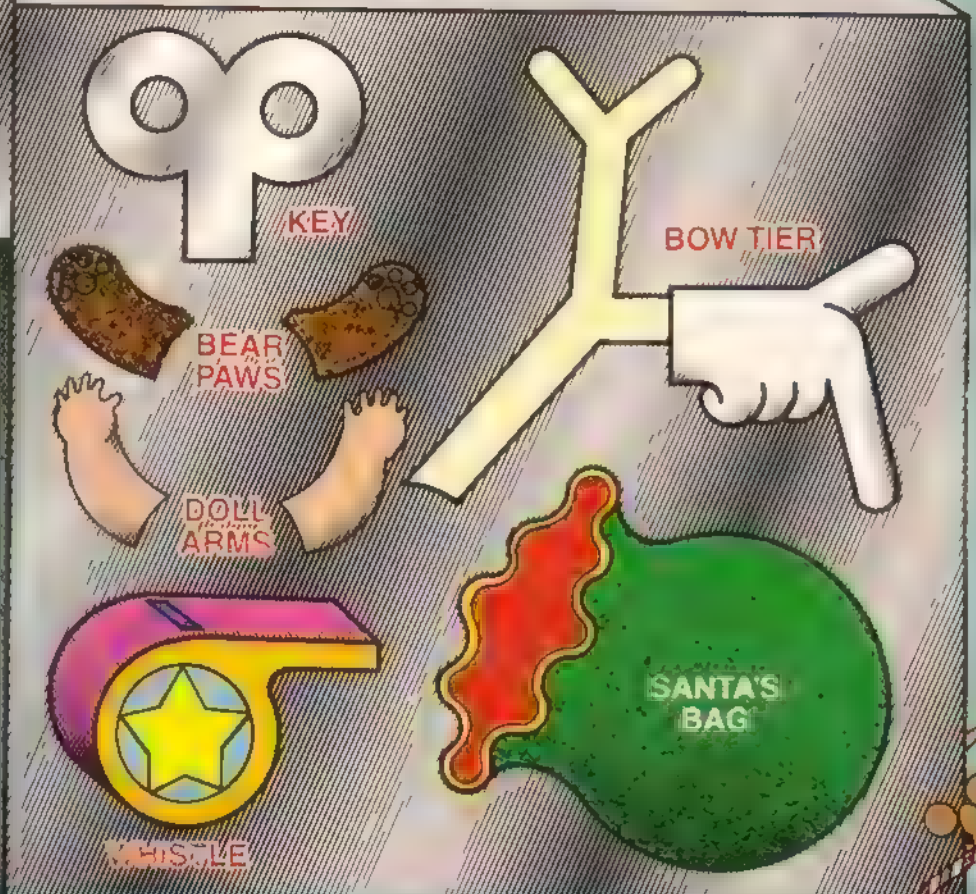


Santa's Mixed-Up Machine

by
Julia Allard



(Answer on Did It! page.)



THE BLOODHOUND GANG

The Case of the Stolen Space-Jewel

by Becky Cheston



"A month or two late for trick or treating isn't it, Ricardo?" Skip had been snoozing in the office when he woke to find Ricardo standing over him—dressed in a Halloween costume! He had on a silver spacesuit and a green mask with pointed ears, and there was fur on his bare feet.

"What's the occasion?" asked Skip, reaching up to pull away Ricardo's mask.

"EEEEooow!" Ricardo shrieked.

Skip jumped up. The mask felt like real skin! Then Ricardo opened his mouth to speak, and Skip saw a green tongue and jagged teeth. Definitely not Ricardo.

Skip ran behind the desk. "Oh no!" he whispered. "A real live alien!"

"Don't be afraid," said the alien. "My mission is a peaceful one."

The creature moved a step closer to Skip. Skip moved a step backwards.

"I've heard that you are the greatest detective on this planet," the alien explained.

Skip stepped forward. "Go on," he said.

"My name is Tritor," said the alien. "I come from the planet Vulcan, the tenth planet in your solar system."

"Wait a minute," Skip replied. "There are only nine planets in the solar system."

"Ah, but you're wrong," said Tritor. "Because, as you can see, here I am."

"But why are you here?" asked Skip.

"One of Vulcan's most valuable treasures has been stolen," Tritor explained. "It was collected during our last mission to Earth. It's one of the rarest and most precious coins of your world."

"Wow!" Skip exclaimed. "Who took it?"

Tritor's pointed ears drooped. "It was Mylar, the most devious trickster on Vulcan."

"This Mylar is a crook, huh?"

"No, just a poor sport," answered the alien. "He ran for Imperial Council last year and lost. Now he's trying to make us look like fools by daring us to find the coin."

"How can I help?"

"Mylar left a message, which seems to be in some sort of Earth code."

"Let's have a look," said Skip.

"You'll have to come up to the spaceship," said Tritor, holding out a fur-covered hand.

Suddenly, Skip felt the floor beneath him begin to waver. He was being beamed aboard the Vulcan spaceship!

Mylar Strikes Back

The next thing Skip knew, he was standing in a spaceship control room. Vulcans were bustling all about, working computers or adjusting brightly lit controls. Skip looked at the

massive viewing screen and gasped. There, far below, was the Earth!

"Here's the message," said Tritor. "Be careful, it's on a strange, fragile substance."

"Substance?" Skip laughed. "This is just plain old paper." Skip read the note:

*"Nine times nine is 81,
(I'm having so much fun)
There's nine places the coin could be,
Far from the sun you should look for me."*

"Nine," said Skip. "That's easy, there are nine planets in the solar system—"

"Ten," interrupted Tritor.

"—and we start with the planet that's furthest away from the sun—Pluto!"

"Terrific!" Tritor cried.

"But Pluto's billions of miles away!" Skip moaned. "We'll die of old age before we get there!"

"No problem," said Tritor, turning to his crew. "Captain, warp factor 10, please!"

In no time at all, the Vulcan spaceship was orbiting Pluto.

"Well, here we are," said Tritor, turning to Skip. "Now what?"

"Beats me," said Skip. "Pluto is the smallest planet in the solar system. But this is still like trying to find a needle in a haystack."

Just then, the captain spotted a small spaceship on the viewing screen. "A Vulcan orbiter!" cried Tritor. "Let's board her!"

Skip felt his feet give way beneath him again. Seconds later he was standing inside the small spacecraft with Tritor. There was no one else there.

Suddenly, Skip spotted something. "Look at this!" he shouted, grabbing a paper airplane

from the floor. He unfolded it and there was another message from Mylar:

*"It's not here where it's oh-so-cold.
So let's keep this chase alive,
It's also not where a one-year-old
Is one hundred and sixty-five."*

*And don't waste your time going around the
world,
With 17 satellites,
And cruise on by that big bright ball
With a tilt that's out of sight!*

*But here's a hint where the coin might be,
(I'm having such a gas!)
This place is like a three-ring circus,
It's spinning oh-so-fast."*

"What does that mean?" asked Tritor, scratching the fur on his nose.

"Well, this first part says the coin isn't on Pluto," Skip explained. "And it's not on Neptune, either."

"How do you know that?"

"It takes Neptune 165 Earth years to travel around the sun. So a year on Neptune equals 165 Earth years."

"I see," said Tritor. "And the planet with 17 satellites?"

"That's Saturn," Skip answered. "So it's not there, either."

"But what in the name of Vulcan is an 'out-of-sight tilt?'" Tritor asked.

"I think Mylar's talking about the angle of a planet's tilt as it spins around the sun," Skip said. "The Earth is tilted 23½ degrees, but Uranus has an extreme tilt: 98 degrees."

"Okay," said Tritor. "The coin isn't on Pluto, Neptune, Saturn or Uranus. So where does Mylar want us to go next?"

"What planet has rings, is mostly gas and has the fastest rotation: nine hours, 50 minutes and 30 seconds, compared to 24 hours on Earth?"

"Jupiter!" cried Tritor.

A Star Detective

A few minutes later, Skip was staring at the slim rings of Jupiter. Suddenly, another small orbiter craft appeared.

"That blasted Mylar had better be here!" Tritor said as he and Skip beamed aboard. ➡





But the orbiter was empty except for some objects on a small table.

"This must mean something," said Skip. On one side of the table was a golden hand mirror and on the other side, a small spear and shield.

"That Mylar!" cried Tritor in dismay. "What is he up to now?"

Suddenly Skip cried out, "I've got it! These are symbols for planets, taken from ancient Earth mythology!"

"What?" asked Tritor.

"A hand mirror stands for Venus, the goddess of love. The shield and spear are symbols for Mars—god of war.

"Great," groaned Tritor. "Two more stops."

The Vulcan ship sped to Venus where there was no sign of Mylar. However, when they got to Mars, another orbiter was circling the planet. Once more, Skip and Tritor beamed aboard. But the only thing they found was a jar of water.

"What's this supposed to mean?" asked Tritor, holding the jar. Skip began to laugh.

"What's so funny?" Tritor snapped.

"All this traveling at warp speed—and the coin is back on Earth where we started!"

"It can't be!"

"The jar is filled with water," Skip explained.

"Well, Earth is the only planet that's three fourths covered with water!"

"Congratulations, young Earth detective!" a loud voice said from behind Skip.

"Mylar!" exclaimed Tritor. The devious coin thief was staring at them from the communications screen.

Soon, Skip and Tritor were back in the Bloodhound Gang's office back on Earth. Mylar, after admitting defeat, had agreed to transport the coin there.

"There it is!" Tritor shouted joyfully, pointing to the desktop.

On the blotter sat a beautiful crystal box. But when Skip saw what was inside his mouth dropped open. He started to chuckle, then laugh, until tears streamed down his cheeks.

"Yes, I know," Tritor said solemnly. "It's a wondrous thing to behold."

"Wondrous!" yelled Skip. "It's a chocolate-chip cookie! I have a whole bag of them!"

Tritor was stunned. "You must be a very successful detective to be so rich. I have an idea! We'll take you to Vulcan and you can be the greatest detective in all the worlds!"

Before Skip could answer, they were beaming up to the spaceship. He'd never see the Earth again!

The Cookie Crumbles

"Earth to Skip!" Vikki was tugging at Skip's shoulder.

Skip was mumbling, "The greatest detective of all worlds...."

"Skip, wake up!" Vikki yelled.

Skip's eyes popped open and he looked around.

"Fall asleep studying for your astronomy test?" Ricardo asked.

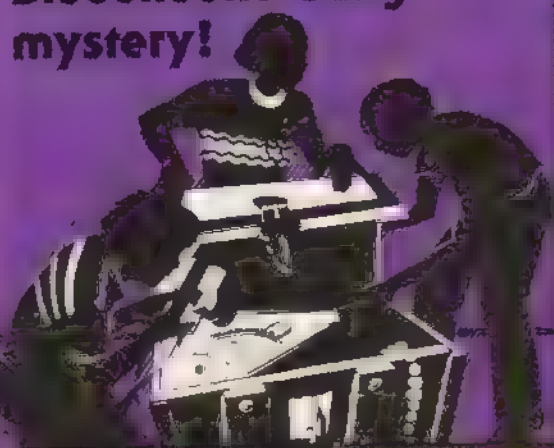
"With your usual study aids?" added Vikki holding up a bag of chocolate-chip cookies.

"What a dream!" Skip groaned. "I guess there really isn't a tenth planet."

"Hey Skip," Vikki laughed. "Are you sure you're awake?"

"Yeah," said Ricardo. "You look pretty spaced out."

**Watch for next month's
Bloodhound Gang
mystery!**



ENTER

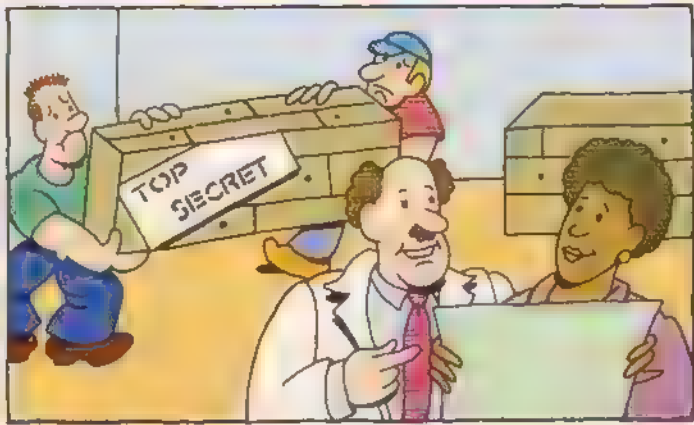
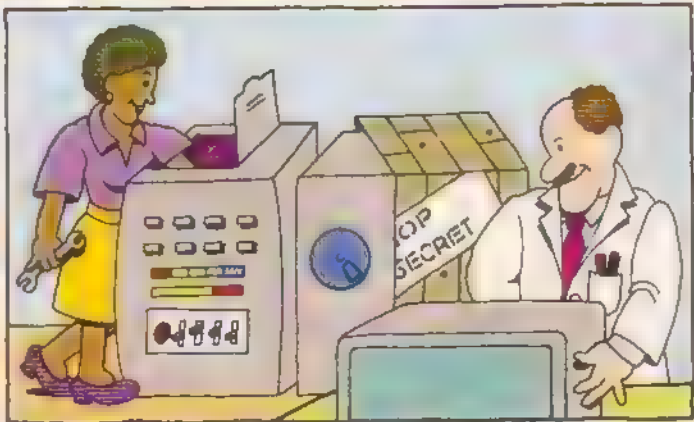
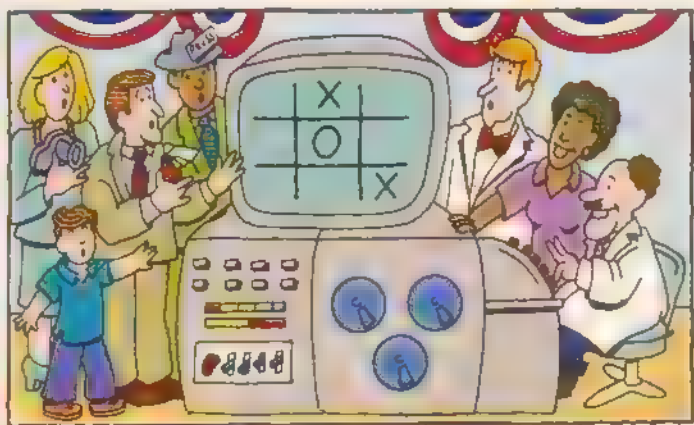
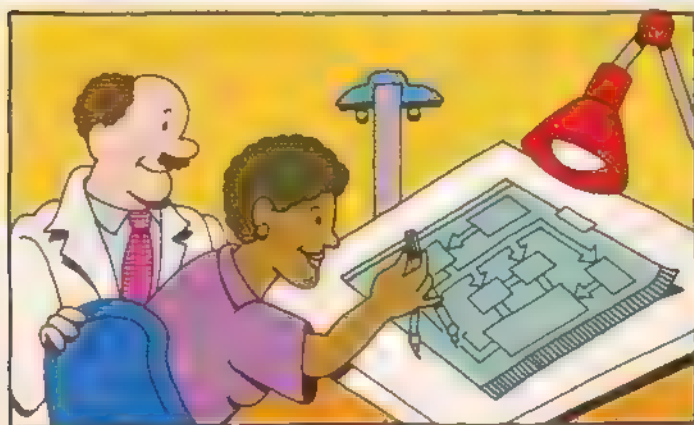
THE HIGH-TECH WORLD OF COMPUTERS

Hi-Tech Hijinks

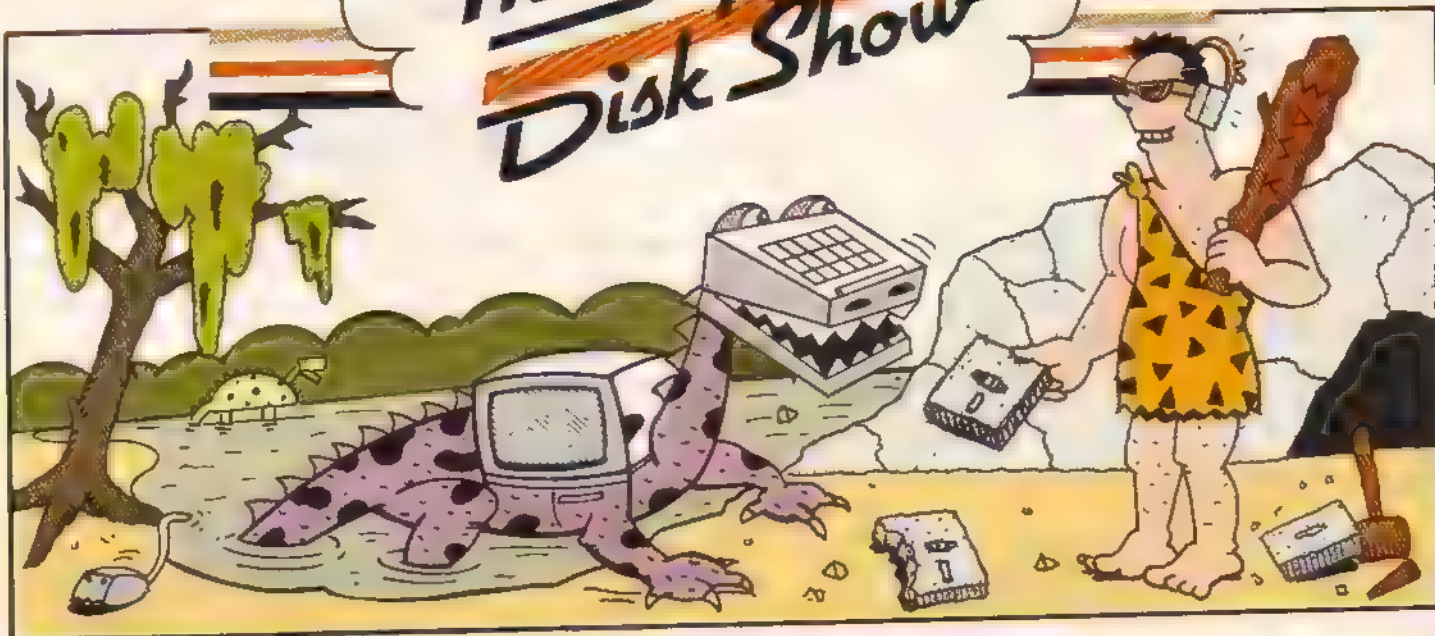
The scientist in this comic strip wants to build a special computer.

But right now all the pictures are mixed up. Can you help out the scientist by putting the panels in

the right order? We've numbered the first one to get you started. The answer is on the Did It! page.



The Slipped Disk Show



Happy holidays, hackers! Slipped Disk is here, so be of good cheer, and get ready for another show!

As a world-famous floppy disk jockey, I get a lot of questions about computers, like: "What was the first computer to hit three home runs in the World Series?" and "What computer wrote Beethoven's Fifth Symphony?" I bet a lot of you would like to know. (I sure would.)

Well, I do know the answer to this question. It's from **Lori Guidry**, 8, of Chicago, Illinois. She asks:

"Who invented the first computer?"

Lori, like everything else, the first computers crawled out of a swamp. They were big, laid eggs, and had a brain the size of a microchip. (Come to think of it, computers still have brains the size of microchips.)

But seriously, computers were not invented by one person. Many different scientists and engineers made contributions that led to the computer as we know it today.

Credit for the first electronic computer should probably go to three men. Dr. John Atanasoff built a very primitive computer at Iowa State University in the 1930's. Later, after World War II, Dr. John Mauchly and Dr. J. Presper used some of Atana-

soff's ideas to build ENIAC, the first computer as we know it. But even though ENIAC filled up an entire room, it still wasn't as powerful as an Apple II. (And you don't have to go to a swamp to get one.)

Speaking of swamps, I better crawl over to the next question, which comes from **Albert Lamaute**, of Marlboro, New Jersey. Albert wants to know:

"Can a computer work without any microchips?"

Albert, to answer your question, we'll have to go back to the history books. Say, did you know that computers were very important during

the Middle Ages? In fact, the whole Middle Ages were only supposed to last a few weeks, but due to a computer error, they went on for several hundred years.

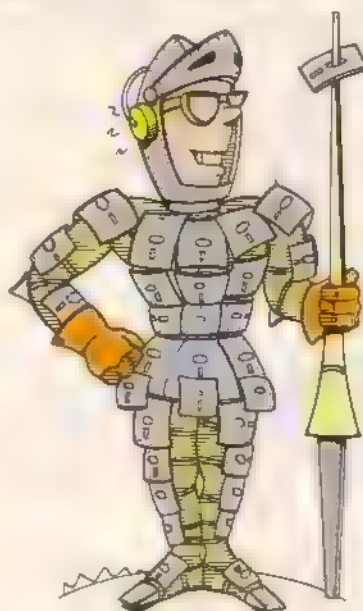
But let's talk about microchips. The first computers, like ENIAC, did not use microchips, for the simple reason that microchips had not been invented yet. Instead, their memories were made up of thousands of vacuum tubes. Each tube held one bit of information.

Today, almost all computers use microchips. In the future, we may see new types of computers without them. For example, scientists are already thinking of using crystals instead of microchips.

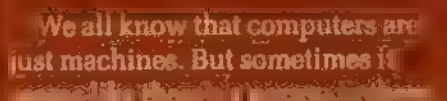
And I hope that makes it crystal clear. I'll be back next month to tell you about the important role computers played in the rise and fall of the Roman Empire. In the meantime, if you have any computer questions, send them to:

The Slipped Disk Show
3-2-1 CONTACT
1 Lincoln Plaza
New York, NY 10023
 See ya!

Slipped Disk's vocabulary supplied by Richard Chevat in return for a promotional consideration.



The Little Computer People Contest



If there are little people inside about them. What do they look like? What's their name? How did they get in there? What do they do all day? Or maybe there's some other kind of creature who lives inside your com-

You can either draw your little computer person, or you can write writing and drawing. If you don't can enter anyway

● You can enter a drawing or a

- division software. There will be one First Prize winner for the best draw and will also be five Second Prizes in the division. All winners will receive one Activision software program.

- Send your entry to:

So get out your pens, your cray-

ons, your paintbrushes,

your markers, your pencils,

and your colored paper.

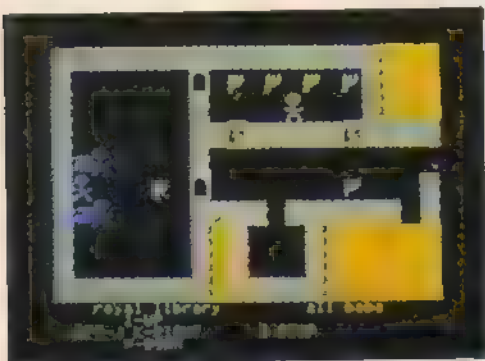
Put them aside

side your computer.

REVIEWS

by Phil Wiswell and Bill Gillette

All software is rated on a scale of one to 10, based on Phil and Bill's overall reaction. A rating of 10 is the very best.



Age of Adventure

(Electronic Arts, Apple II, \$40; also for the Commodore 64)

Description: Two classic action games.

Playability: Very good if you're a joystick action fan.

Graphics: Clumsy and primitive.

Originality: This is a repackaging of two old games.

Rating:

This disk contains two classic games from several years ago: *The Return of Heracles* and *Ali Baba and the Forty Thieves*. Both feature mazes containing traps and treasures through which you move your character. You can choose from a wide range of characters with different abilities.

Even though these are old games, they are both "must-haves" if you like joystick action games. Except for the different settings, they are very similar to each other. You won't solve either one overnight.

Certificate Maker

(Springboard, IBM PC, \$60; also for Apple II and Commodore 64)

Description: Print your own awards, certificates and posters.
Playability: We couldn't stop! The possibilities are endless.

Graphics: Highly appealing.

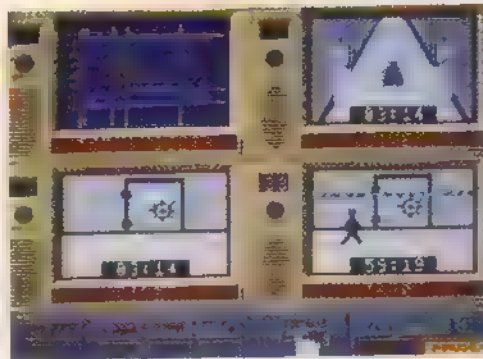
Ease-of-use: Anyone can do it!

Originality: There are some similar programs but none as good.

Rating:

We haven't been this excited about this kind of program since *Newsroom* from the same company. *Certificate Maker* is just what it sounds like. You get to design your own certificates, edit and store them on a disk, then print them. You can make Sports Awards, Wanted Posters, Video Game Championship Certificates—you name it.

Springboard keeps things simple. The disk gives you 200 ready-made awards or certificates for all kinds of things. You pick out the border you want and fill in the name, message, dates and any other information. All the artwork and designing is already done. We recommend this program to anyone with a dot matrix printer.



Hacker II

(Activision, Commodore 64, \$35; also for the Apple II)

Description: You play the role of a computer expert, trying to break into a top-secret Soviet security area.

Playability: This game can be very habit-forming.

Graphics: Good, but not very exciting.

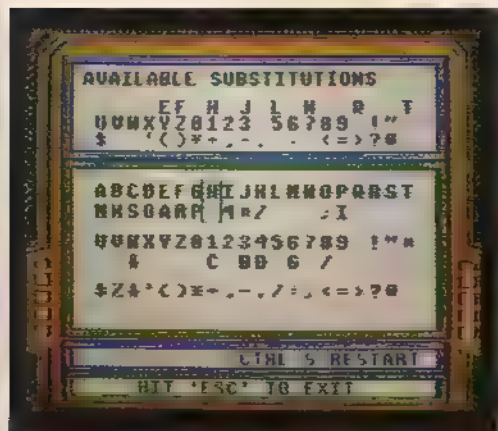
Originality: Although it's a follow up to *Hacker*, it is strong enough to stand alone.

Rating:

Hacker II is an excellent game and very different from the original. In this game, the Russians have a document that could ruin any chance for world peace. It is hidden in a safe in a maximum security area somewhere in Siberia. Not only that, it is guarded by robots, computers, video cameras and other electronic gadgets.

Your mission is to get the combination of the safe, get past the robots and all the electronic gear, and get the document. But you don't have to travel to Siberia to do it. You use your computer and a communications satellite to hack your way to the document.

We loved *Hacker* and we love *Hacker II* even more. The biggest difference between the two is the instructions. *Hacker* didn't have any at all. *Hacker II* supplies too much—pages and pages. But half the fun of the game is sifting through the manual to find the stuff you really need.



Codes & Cyphers

(Weekly Reader Software,
Apple II, \$40)

Description: A word-puzzle brain-teaser.

Playability: This is a great program for word-puzzle fans.

Graphics: Fair, but this is not a graphics program.

Ease-of-use: Very simple.

Originality: Nothing new here.

Rating:

This program is a word-puzzle maker. You can try to solve the 26 word puzzles that come on the disk, or you can make up your own coded messages. Here's one to whet your appetite: DPCFT BAF FBT JFQ SP TPHUF.

You learn a lot about words and how they are formed. For instance: What are the most commonly used letters in the alphabet? The codes range from fairly easy to extremely hard. The program itself is very easy to use.

Walt Disney's Comic Strip Maker

(Bantam Software, Apple II, \$50)

Description: You make your own comic with Disney characters.

Playability: Hours of fun.

Graphics: Mickey, Pluto, Donald and the gang—great, of course!

Ease-of-use: Not hard at all, but read the instructions first.

Originality: How come no one thought of this before?

Rating:

This program lets you create your own original comic strips using Walt Disney characters such as Mickey Mouse and Donald Duck. There are 48 comics included on the disk, but the real fun comes when you make up your own. And you don't have to be an artist. You just "cut and paste" the images included on the disk.

The program gives you backgrounds, Disney characters, and other objects such as furniture, to place in your strip. When you have everything in place, you can add your own dialogue. The comics are in full color screens. You can save them on a disk or use a dot matrix printer to print them in black and white. Each strip is only three panels long, but you can run several of them together to create your own comic book.



Best Programs of 1986

It's that time of year again, when we pick our favorite computer games and programs from the past year. Here are our favorites from 1986.

Ballyhoo (Infocom): Best text adventure. It takes place at a carnival and it really made us feel like we were there.

Certificate Maker (Springboard): This program is more fun than most games. It's something everyone will want to use and keep using.

Hardball! (Accolade): Best sports game. You'll like this one even if you hate baseball.

Heart of Africa (Electronic Arts): Best strategy game. This is action/adventure gaming at its best.

Ball Blazer (Epyx): This futuristic sports game happens to be one of the best two-player games ever designed.

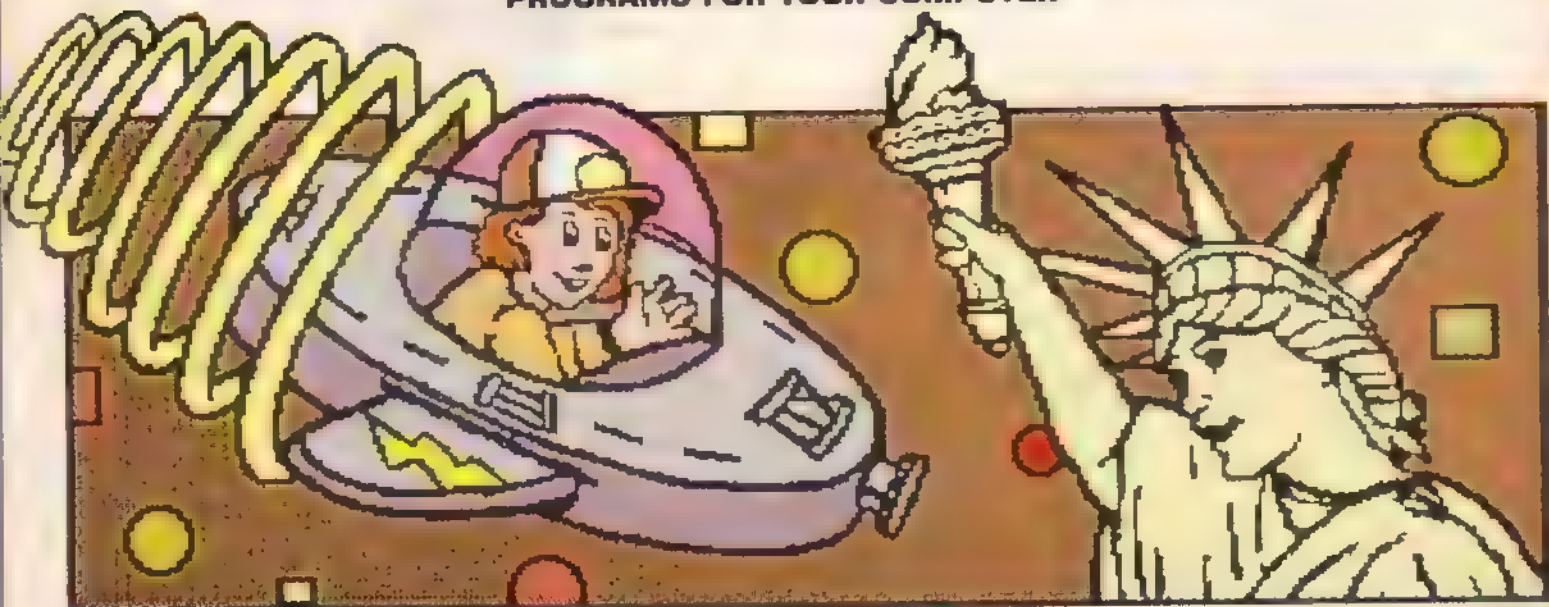
Fantavision (Broderbund): The most enjoyable and easy-to-use graphics animation program.

Murder On The Mississippi (Activision): A tough mystery program with a great game-playing system.

Phil Wiswell, father of three, is a computer consultant and writer. Bill Gillette, 16, is a student with a passion for computers.

basic training

PROGRAMS FOR YOUR COMPUTER



Time Machine

Apple, Atari, Commodore,
IBM, TI 99/4A

Are you ready to go back to the future? How about forward to the past? This program may not take you to the age of the dinosaurs, but you will have fun zooming back and forth on your own computerized timeline.

This "Time Machine" will give you an historical event and ask you to type in the year in which it occurred. You must visit five different years and return to the present before you run out of fuel.

You can change the five events and their dates by changing the DATA statements in lines 790—830. Remember, if you play this game next year, change the starting year in lines 30 and 850 to 1987.

The program is written for Apple II computers. Instructions for adapting it to other computers are printed after it. If you want to see how the game turns out, just set your time machine for the future and find out.

Apple II

```

10 DIM M$(5),ER$(5),T$(2),
   DIR$(12)
20 M = 1:W = 0:M$ = " "
30 YR = 1986:DIR$ = "NEUTRAL"
40 FU = 300:ER$ = "A.D."
50 REM GAME LOOP
60 GOSUB 630
70 GOSUB 740
80 IF W = 0 THEN 110
90 PRINT "YOU HAVE LANDED
   IN THE WRONG YEAR!!!"
100 W = 0
110 PRINT
120 PRINT "CURRENT MISSION "
130 PRINT "GO TO THE YEAR IN
   WHICH"
140 PRINT M$
150 PRINT
160 PRINT "TIME COMPUTER
   WAITING FOR
   INSTRUCTIONS"
170 PRINT "NEW DIRECTION
   (PAST OR FUTURE) "
180 INPUT DIR$
190 PRINT "WHAT YEAR ",
200 INPUT NY
210 PRINT "INPUT T TO START
   TIME TRAVEL ";
220 INPUT T$
230 IF T$ = "T" THEN 250
240 GOTO 210
250 REM TIME TRAVEL

```

```

260 IF DIR$ = "PAST" THEN 290
270 IF DIR$ = "FUTURE" THEN
   310
280 GOTO 670
290 IF NY >= YR THEN 570
300 DI = -1: GOTO 330
310 IF NY <= YR THEN 570
320 DI = 1
330 S = 20:FU = FU - 5
340 REM TRAVEL LOOP
350 IF ABS(YR - NY) > 25 THEN
   370
360 S = 1
370 YR = YR + (DI * S)
380 FU = FU - 1
390 IF FU < 1 THEN 440
400 GOSUB 630
410 FOR P = 1 TO 20: NEXT P
420 IF YR = NY THEN 490
430 GOTO 340
440 REM OUT OF FUEL
450 PRINT
460 PRINT "FUEL USED UP!!!"
470 PRINT "YOU ARE STUCK
   IN ";YR,ER$
480 GOTO 560
490 REM CHECK YEAR
500 IF YR < > DT THEN 520
510 M = M + 1: GOTO 530
520 W = 1
530 IF M > 6 THEN 550
540 DIR$ = "NEUTRAL": GOTO 50
550 PRINT "MISSION
   COMPLETE!!!!!!"

```

```

560 END
570 REM BAD COMMAND
580 HOME
590 GOSUB 630
600 PRINT
610 PRINT "INVALID
COMMAND!!!!!"
620 GOTO 110
630 REM PANEL
640 HOME
650 PRINT "TIME MACHINE"
660 PRINT "INSTRUMENT
READINGS"
670 PRINT
680 PRINT "YEAR: ";YR,ER$
690 PRINT "FUEL UNITS LEFT:
";FU
700 PRINT "DIRECTION: ";DIR$
710 IF FU > 80 THEN 730
720 PRINT "WARNING!!!! FUEL
SUPPLY LOW!!"
730 RETURN
740 REM MISSIONS
750 FOR X = 1 TO M
760 READ MI$: READ DT
770 NEXT X
780 RESTORE
790 RETURN
800 DATA COLUMBUS
DISCOVERED AMERICA, 1492
810 DATA THE PILGRIMS
LANDED, 1620
820 DATA THE NEXT PRESIDENT
WILL BE ELECTED, 1988
830 DATA THE STATUE OF
LIBERTY WAS COMPLETED,
1886
840 DATA THE NORMANS
INVADED ENGLAND, 1066
850 DATA YOU STARTED, 1986

```



Atari

400/600, 400XL/600XL

Change HOME in lines 570 and 630 to PRINT CHR\$(125)

Commodore 64/128

Change HOME in lines 570 and 630 to PRINT CHR\$(147)

IBM

Change HOME in lines 570 and 630 to CLS

TI 99/4A

Change HOME in lines 570 and 630 to CALL CLEAR

If you don't have extended BASIC, you must break up all multiple statements lines.

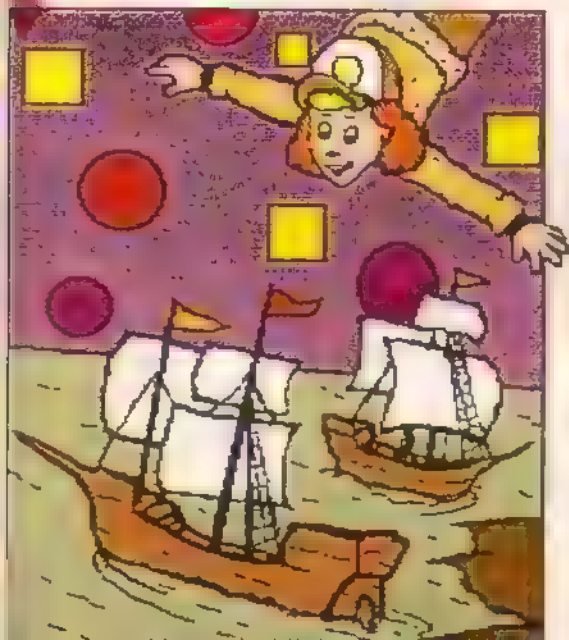
Send Us Your Programs

Have you written a program you think should be in BASIC Training? If you have, then send it to us at:

BASIC TRAINING
3-2-1 CONTACT
1 Lincoln Plaza
New York, NY 10023.

If we like it, we'll print it, and send you \$25 and a T-shirt.

All programs must be your original work. Remember to include a note with your program that tells us your name, age, and T-shirt size. Don't forget to tell us the brand of computer you used and to include a short description of what the program does.



Extra!

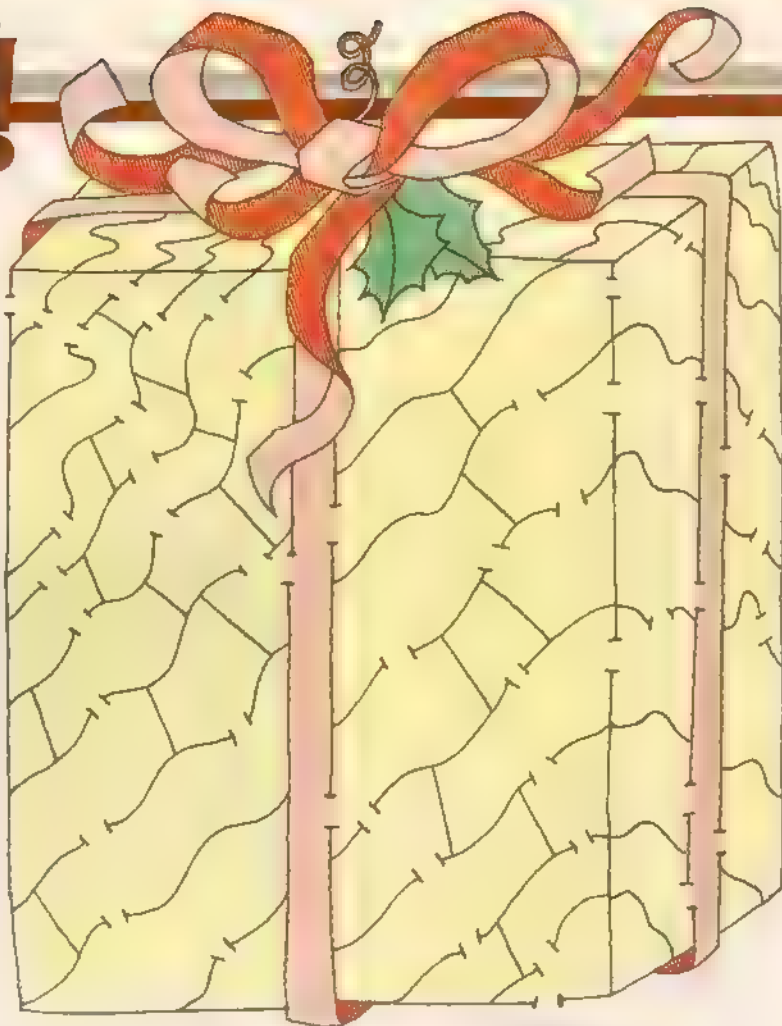
by Ellen R. Mednick

Get ready for some EXTRA! excitement filled with loads of holiday cheer!

A Merry Maze

Christmas and Hanukkah are celebrated in December—a great month for gift giving. So here's a special gift maze to begin the holiday season. Can you get from start to finish without tearing off the wrapping? See the Did It! page for an answer.

START

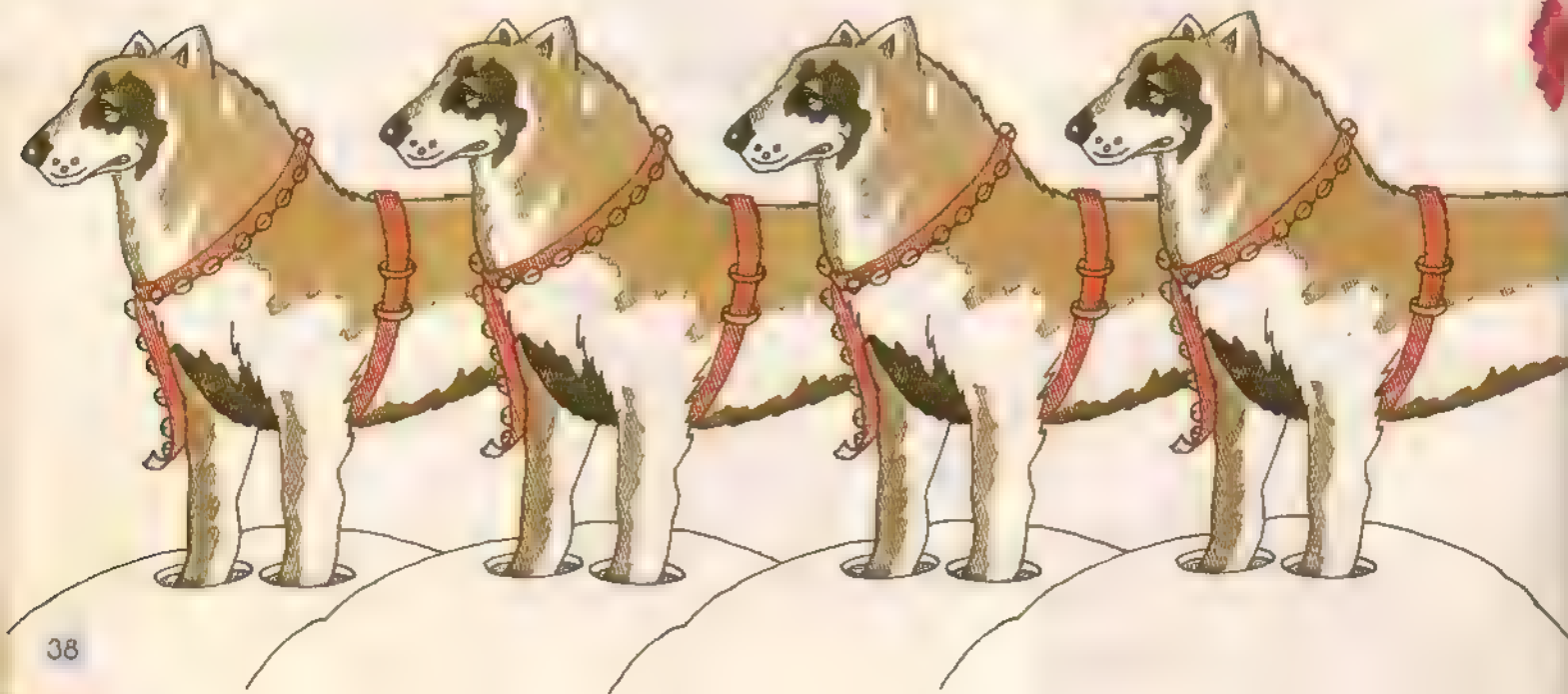


FINISH

Husky Hunt

Huskies are real life heroes at the North Pole. Now check out this pack of huskies.

They all may seem identical, but if you look carefully, you'll find that one is different. The answer is on the Did It! page.





Holiday Cider

Here's a recipe to make your holiday celebrations warmer—and super merry. Ask an adult to help you!

What You Need

$\frac{1}{2}$ of an orange, $1\frac{1}{2}$ quarts apple cider, 2 cinnamon sticks, $\frac{1}{8}$ teaspoon ground nutmeg, $\frac{1}{8}$ teaspoon ground mace, 1 whole clove.

What You Do

1. Put the half orange in a medium-size saucepan. Then pour in the apple cider. Add cinnamon sticks, nutmeg, mace and clove. Stir the mixture.
2. Place the pot on the stove.
3. Heat the mixture over medium heat for 10 minutes or until it begins to bubble. Then lower the heat.
4. Simmer (cook on a very low heat) for 15 minutes.
5. Makes enough to fill four mugs. Serve warm.

3-2-1 Contest

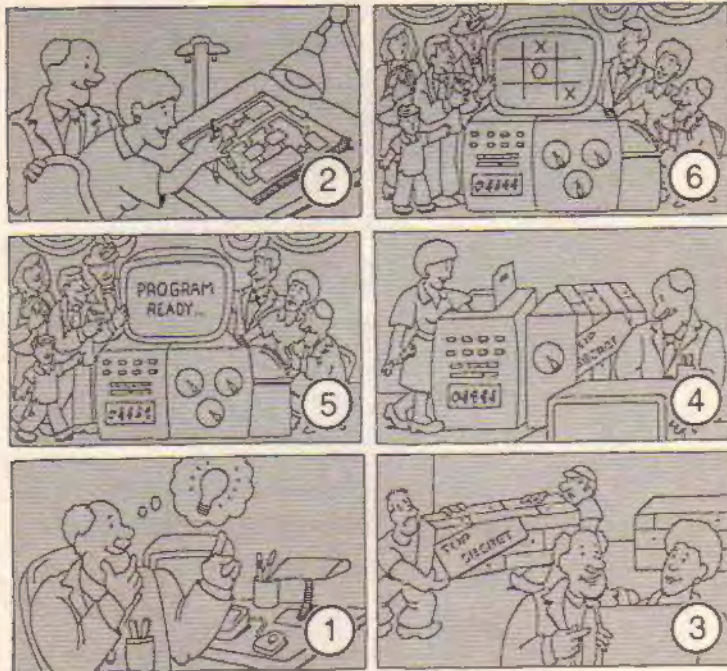
Have you ever wanted to travel in time? Here's your chance to go "back to the future." Choose any date in the past. Tell us (in 100 words or less) why you want to go back to that special time and place. For some extra fun, send us a drawing of what you think life was like back then. We'll choose our favorites. The best will receive CONTACT T-shirts.

Send to: **Back in Time Contest**
3-2-1 Contact
P.O. Box 599
Ridgefield, NJ 07657



—Did It!—

Jumbled Comic



Santa's Mixed-Up Machine

Fill in the blanks this way:

Wind with **KEY**.

If Mice are stealing candy, blow **WHISTLE**.

If toy is furry, add **BEAR PAWS**.

If it is not furry, add **DOLL ARMS**.

If you need an extra hand, use **BOW TIE**.

Drop in **SANTA'S BAG**.

Gift Box Maze



Next Month!

Here's a quick peek at what's in store for you next month in 3-2-1 CONTACT:

Animal Dentists

Meet some folks who fill cavities on chimps and do root canals on rhinos!

For the Birds!

Birds of a feather may flock together, but not all birds eat the same things. Find out why in this fun photo quiz.

Come To Your Census!

A behind-the-scenes look at the U.S. agency that figures out who we are—by adding up a lot of numbers.

Plus much, much more!

Husky Puzzle

The first dog has one less bell on its collar.

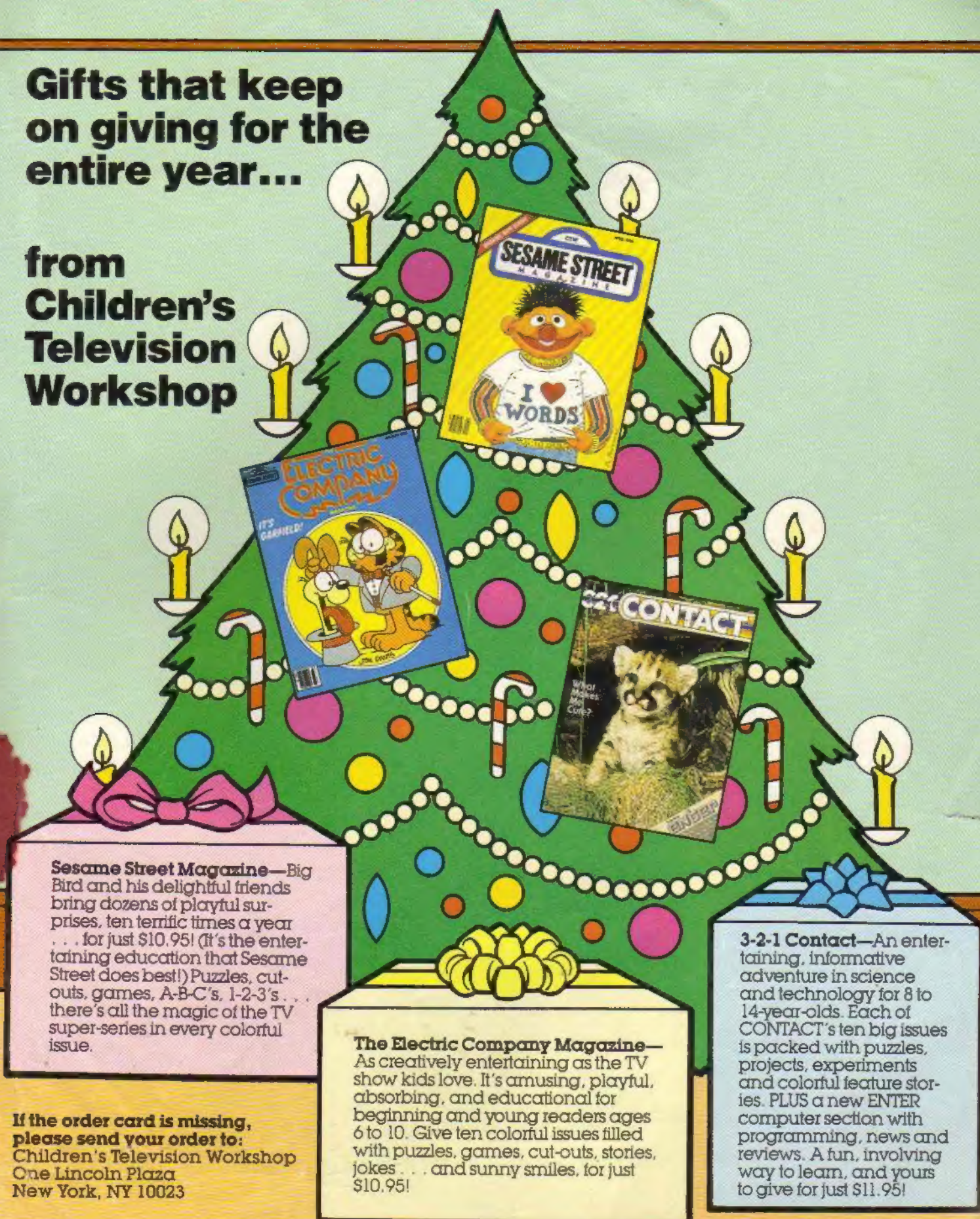
Thank You!

Thanks to our student intern Andrew Nachison for his help in putting this issue together.

HOLIDAY FUN

**Gifts that keep
on giving for the
entire year...**

**from
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Television
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3-2-1 Contact—An entertaining, informative adventure in science and technology for 8 to 14-year-olds. Each of CONTACT's ten big issues is packed with puzzles, projects, experiments and colorful feature stories. PLUS a new ENTER computer section with programming, news and reviews. A fun, involving way to learn, and yours to give for just \$11.95!

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